

# **EPA Jacket 88685-2**

# Material Sent for Data Extraction

Reg. # 88685-2

Description: CSF Notification

☒ Material(s) Sent to Data Extraction Contractors:

☐ New Stamped Label Dated \_\_\_\_\_

☒ Notification Dated \_\_\_\_\_

☒ New CSF(s) Dated 8-6-12 (stamped)  
5-29-12 (dated)

☐ Other: \_\_\_\_\_

☒ Decision #: 468228

☐ Other Action/Comments: \_\_\_\_\_

File this coversheet and attached materials in the jacket. It must be well organized and clipped together, NOT STAPLED. Then give the jacket with the coversheet and materials to staff in the Information Services Center (ISC) (Room S-4900). If a jacket is full or only available as an image, please file materials in a new jacket and bring it down to the (ISC). For further information please call 703-605-0716.

Reviewer: Emily Hartman

Phone: 703-347-0189 Division: RD/HB

Date: 8-6-12



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

OFFICE OF CHEMICAL SAFETY  
AND POLLUTION PREVENTION

Jane M. Miller  
Orion GFS, LLC  
c/o Biologic, Inc.  
115 Obtuse Hill Road  
Brookfield, CT

AUG 6 2012

Subject: Glufosinate 280 Herbicide  
EPA Reg. No. 88685-2  
Alternate Confidential Statement of Formula (CSF)  
Application Dated: May 29, 2012

Dear Ms. Miller,

The Agency is in receipt of your Application for Pesticide Notification under Pesticide Registration Notice (PRN) 98-10 for Glufosinate 280 Herbicide (EPA Reg. No. 88685-2) dated May 29, 2012. The Registration Division (RD) has conducted a review of this request for its applicability under PRN 98-10 and finds that the action requested falls within the scope of PRN 98-10. The alternate CSF, dated May 29, 2012, is acceptable and will be placed in our records.

If you have any questions, please contact Emily Hartman of my staff at (703) 347-0189 or [hartman.emily@epa.gov](mailto:hartman.emily@epa.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "K. Montague", written over a horizontal line.

Kathryn V. Montague, Project Manager 23  
Herbicide Division  
Registration Division  
Office of Pesticide Programs

A handwritten signature in black ink, appearing to read "fer", written to the right of the typed name.



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Kathryn V. Montague, Project Manager 23  
Herbicide Division  
Registration Division  
Office of Pesticide Programs

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May 29, 2012

Document Processing Desk (NOTIF)  
Office of Pesticide Programs (7504P)  
US Environmental Protection Agency  
One Potomac Yard  
2777 S. Crystal Drive  
Room S-4900, 4<sup>th</sup> Floor  
Arlington, VA 22202

Attention: Ms. Kathryn Montague (PM #23)

RE: "Glufosinate 280 Herbicide", EPA Reg. No. 88685-2  
Notification to add alternate source of active ingredient

Dear Ms. Montague:

On behalf of Orion GFS, LLC please find enclosed an Application for Pesticide Notification to add an EPA approved source of active ingredient.

The following documents are enclosed to process this Notification:

1. Application for Pesticide Notification (EPA Form 8570-1)
2. One (1) copy of the proposed alternate formulation Confidential Statement of Formula (EPA Form 8570-4)

Should you have any questions, or wish to reach me, please feel free to contact our office at 203-740-1200.

Sincerely,

Jane Miller  
Agent to Orion GFS, LLC

115 Obtuse Hill Road • Brookfield, CT 06804  
Tel: 203.740.1200 • Fax: 203.740.1220  
Email: [jmiller@biologicconsulting.com](mailto:jmiller@biologicconsulting.com)



United States  
Environmental Protection Agency  
Washington, DC 20460

☐ Registration  
☐ Amendment  
☒ Other

OPP Identifier Number

## Application for Pesticide - Section I

1. Company/Product Number 88685-2	2. EPA Product Manager K. Montague	3. Proposed Classification <input type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) Glufosinate 280 Herbicide	PM# 23	
5. Name and Address of Applicant (Include ZIP Code) Orion GFS, LLC C/O Biologic, Inc. 115 Obtuse Hill Road Brookfield, CT 06804 <input type="checkbox"/> Check if this is a new address	6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	

## Section - II

<input type="checkbox"/> Amendment - Explain below.	<input checked="" type="checkbox"/> Final printed labels in response to Agency letter dated _____	<b>NOTIFICATION</b>  <b>AUG - 6 2012</b>
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.	
<input checked="" type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - Explain below.	

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

This is a notification to add an alternate source of the active ingredient as per PR Notice 98-10. This notification is consistent with the provisions of PR Notice 98-10 and the EPA regulations at 40 CFR 152.46, and no other changes have been made to the labeling or the confidential statement of formula of this product. I understand that it is a violation of 18 U.S.C. Sec. 1001 to willfully make any false statement to EPA. I further understand that if this notification is not consistent with the terms of PR Notice 98-10 and 40 CFR 152.46, this product may be in violation of FIFRA and may be subject to enforcement action and penalties under sections 12 and 14 of FIFRA.

## Section - III

1. Material This Product Will Be Packaged In:				2. Type of Container	
Child-Resistant Packaging <input type="checkbox"/> Yes <input type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Metal <input type="checkbox"/> Plastic <input type="checkbox"/> Glass <input type="checkbox"/> Paper <input type="checkbox"/> Other (Specify) _____		
* Certification must be submitted		If "Yes" Unit Packaging wgt. _____ No. per container _____	If "Yes" Package wgt. _____ No. per container _____		
3. Location of Not Contents Information <input type="checkbox"/> Label <input type="checkbox"/> Container		4. Size(s) Retail Container		5. Location of Label Directions <input type="checkbox"/>	
6. Manner in Which Label is Affixed to Product <input type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled		<input type="checkbox"/> Other _____			

## Section - IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)					
Name Jane M. Miller		Title Agent		Telephone No. (Include Area Code) (203) 740-1200	
<b>Certification</b> I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.					6. Date Application Received  (Stamped)
2. Signature 		3. Title Agent			
4. Typed Name Jane M. Miller		5. Date May 29, 2012			

# ORION GFS, LLC

April 13, 2012

Document Processing Desk  
Office of Pesticide Programs (P7504C)  
Environmental Protection Agency  
Room S-4900, One Potomac Yard (South Building)  
2777 S. Crystal Drive  
Arlington, VA 22202

Attn: Kathryn Montague (PM 23), Herbicide Branch, Registration Division

Dear Ms. Montague:

Subject: Glufosinate 280 Herbicide (EPA Reg. No. 88685-2): Final Label

Thank you for the Notice of Pesticide Registration dated March 27, 2012. Orion GFS, LLC is pleased to submit here a copy of the final label and Form 8570-1.

Please contact me if you have any questions.

Sincerely,

Robert Hawk  
Source Dynamics LLC  
Agent for Orion GFS, LLC

ORION GFS, LLC  
12230 E. Del Norte, Yuma, AZ 85367-7355  
tel. 928-342-3489



United States  
Environmental Protection Agency  
Washington, DC 20460

☐ Registration  
☐ Amendment  
☒ Other

OPP Identifier Number

## Application for Pesticide - Section I

1. Company/Product Number 88685-2	2. EPA Product Manager Kathryn Montague	3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) Glufosinate 280 Herbicide	PM# 23	
5. Name and Address of Applicant (Include ZIP Code)  Orion GFS, LLC 12230 E. Del Norte, Yuma, AZ 85367-7355  <input type="checkbox"/> Check if this is a new address	6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	

## Section - II

<input type="checkbox"/> Amendment - Explain below.	<input checked="" type="checkbox"/> Final printed labels in response to 3/27/2012
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> Agency letter dated _____
<input type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> "Me Too" Application.
	<input type="checkbox"/> Other - Explain below.

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Submission of final label.

## Section - III

1. Material This Product Will Be Packaged In:				2. Type of Container	
Child-Resistant Packaging <input type="checkbox"/> Yes* <input checked="" type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input checked="" type="checkbox"/> Metal	
* Certification must be submitted				<input type="checkbox"/> Plastic	
	If "Yes" Unit Packaging wgt.	No. per container	If "Yes" Package wgt.	<input type="checkbox"/> Glass	
				<input type="checkbox"/> Paper	
				<input type="checkbox"/> Other (Specify)	
3. Location of Net Contents Information <input type="checkbox"/> Label <input checked="" type="checkbox"/> Container		4. Size(s) Retail Container 2.5 gal		5. Location of Label Directions <input type="checkbox"/> On Label <input checked="" type="checkbox"/> On Labeling accompanying product	
6. Manner in Which Label is Affixed to Product		<input type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled		<input checked="" type="checkbox"/> Other _____	

## Section - IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)			
Name Robert Hawk		Title Agent, Orion GFS, LLC	
		Telephone No. (Include Area Code) 928-342-3429	
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.			6. Date Application Received (Stamped)
2. Signature		3. Title Agent, Orion GFS, LLC	
4. Typed Name Robert Hawk		5. Date 4/13/2012	



## GLUFOSINATE 280 Herbicide

A non-selective herbicide for post emergence weed control in apples, berries, grapes and tree nuts. Glufosinate 280 Herbicide may also be applied for potato vine desiccation. Glufosinate 280 Herbicide is also a non-selective herbicide for post emergence broadcast use on canola, field corn, cotton and soybean designated as LibertyLink. Glufosinate 280 Herbicide may also be applied as a broadcast burndown application before planting or prior to emergence of any conventional or transgenic variety of canola, field corn, cotton, soybean or sugar beet.

### ACTIVE INGREDIENT:

Glufosinate-ammonium (CAS No. 77182-82-2).....	24.5%**
OTHER INGREDIENTS.....	75.5%
TOTAL .....	100.0%

\*\*Equivalent to 2.34 pounds of active ingredient per U.S. gallon.

### KEEP OUT OF REACH OF CHILDREN WARNING – AVISO

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

FOR ADDITIONAL PRECAUTIONARY STATEMENTS: See Inside Booklet.

For MEDICAL and TRANSPORTATION emergencies call 1-800-334-7577

manufactured for  
Orion GFS, LLC  
12230 E. Del Norte  
Yuma, AZ 85367-7355  
tel. 928-342-3489

EPA Reg. No. 88685-2  
EPA Est. No.  
Net Contents:

Product of China

### FIRST AID

IF ON SKIN OR CLOTHING:	<ul style="list-style-type: none"> <li>•Take off contaminated clothing.</li> <li>•Wash skin immediately with plenty of soap and water.</li> <li>•Get medical attention.</li> </ul>
IF IN EYES:	<ul style="list-style-type: none"> <li>•Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>•Remove contact lenses, if present, after the first 5 minutes; then continue rinsing eye.</li> <li>•Get medical attention if irritation develops or persists.</li> </ul>
IF SWALLOWED:	<ul style="list-style-type: none"> <li>•Rinse mouth thoroughly with plenty of water.</li> <li>•Do not induce vomiting.</li> <li>•Get medical attention immediately.</li> </ul>

### HOT LINE NUMBER

Have the product container or label with you when calling a poison control center or doctor, or when going for treatment. Call 1-800-334-7577 for emergency medical treatment information.

### NOTE TO PHYSICIAN

If this product is ingested, endotracheal intubation and gastric lavage should be performed as soon as possible, followed by charcoal and sodium sulfate administration.

**PRECAUTIONARY STATEMENTS  
HAZARDS TO HUMANS AND DOMESTIC ANIMALS  
WARNING**

May be fatal if absorbed through skin. Causes substantial but temporary eye injury. Harmful if swallowed. Do not get in eyes, on skin, or on clothing. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

**Personal Protective Equipment (PPE)**

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category C on an EPA chemical resistance category selection chart.

**Applicators and other handlers must wear:**

- Coveralls worn over short-sleeved shirt and short pants;
- Chemical-resistant gloves such as barrier laminate, butyl rubber ≥14 mils, nitrile rubber ≥14 mils, neoprene rubber ≥14 mils, polyvinyl chloride (PVC) ≥14 mils, or Viton® ≥14 mils
- Chemical resistant footwear plus socks;
- Protective eyewear (goggles, face shield or safety glasses).
- Wear a chemical resistant apron when mixing/loading and cleaning equipment.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

Mixers/loaders supporting aerial applications must wear a dust/mist filtering respirator (MSHA/NIOSH approval number prefix TC-21C), or a NIOSH approved respirator with any N, R, P or HE filter.

When mixing and loading wear a chemical-resistant apron. For overhead exposure wear chemical-resistant headgear. When cleaning equipment wear a chemical-resistant apron.

**Engineering Control Statement:**

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

### **USER SAFETY RECOMMENDATIONS**

#### **Users should:**

Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse.

Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

### **ENVIRONMENTAL HAZARDS**

Do not apply directly to water or to areas where surface water is present. Do not apply to intertidal areas below the mean high water mark. Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.

This pesticide is toxic to vascular plants and should be used strictly in accordance with the drift and run-off precautions on this label in order to minimize off-site exposures.

Under some conditions, this product may have a potential to run-off to surface water or adjacent land. Where possible, use methods which reduce soil erosion, such as no till, limited till and contour plowing; these methods also reduce pesticide run-off. Use of vegetation filter strips along rivers, creeks, streams, wetlands, etc. or on the downhill side of fields where run-off could occur to minimize water runoff is recommended.

### **DIRECTIONS FOR USE**

**It is a violation of Federal law to use this product in a manner inconsistent with its labeling.**

Do not use this product until you have read the entire label. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation. In the State of New York Only: Not For Use In Nassau and Suffolk Counties.

### **AGRICULTURAL USE REQUIREMENTS**

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses; and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted-entry intervals. The requirements in this box only apply to uses of this product that are

covered by the Worker Protection Standard. Do not enter or allow worker entry into treated areas during the restricted entry-interval (REI) of 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is: coveralls worn over short-sleeved shirt and short pants; chemical resistant gloves such as barrier laminate, butyl rubber  $\geq 14$  mils, nitrile rubber  $\geq 14$  mils, neoprene rubber  $\geq 14$  mils, polyvinyl chloride (PVC)  $\geq 14$  mils, or Viton®  $\geq 14$  mils; chemical resistant footwear plus socks; protective eyewear (goggles, face shield or safety glasses).

**IMPORTANT CROP SAFETY INFORMATION  
READ BEFORE USING THIS PRODUCT**

Glufosinate 280 may be applied as a burndown treatment prior to planting or prior to emergence of any conventional or transgenic variety of canola, corn, cotton, soybean or sugar beet.

**Post emergence row crop applications** of Glufosinate 280 may be made only to crops tolerant to the active ingredient in this product. Orion GFS, LLC does not warrant the use of this product on crops other than those designated as LibertyLink® to safely withstand the application of Glufosinate 280.

The basis of selectivity of Glufosinate 280 in crops is the presence of a gene in LibertyLink crops which results in a plant that is tolerant to the active ingredient of Glufosinate 280. Crops not containing this gene will not be tolerant to Glufosinate 280 and severe crop injury and/or death may occur. Do not allow spray to contact foliage or green tissue of desirable vegetation other than crops tolerant to the active ingredient in this product.

Glufosinate 280 may be applied to conventional or other transgenic cotton not tolerant to the active ingredient in Glufosinate 280 using a hooded sprayer.

**Applications to apples, berries, tree nuts, and vines** should avoid contact of Glufosinate 280 solution, spray, drift or mist with green bark, stems, or foliage, as injury may occur to trees, berries and vines. Only trunks with callused, mature brown bark should be sprayed unless protected from spray contact by nonporous wraps, grow tubes or waxed containers. Contact of Glufosinate 280 with parts of trees, berries or vines other than mature brown bark can result in serious damage.

**INFORMATION**

Glufosinate 280 is a water-soluble herbicide for application as a foliar spray for the control of a broad spectrum of emerged annual and perennial grass and broadleaf weeds in LibertyLink® canola, LibertyLink® corn, LibertyLink® cotton, and LibertyLink® soybean, and in apples, berries, grapes, and tree nuts. Glufosinate 280 may also be applied for potato vine desiccation. Glufosinate® 280 may also be applied as a broadcast burndown application before planting or prior to emergence of any conventional or transgenic variety of canola, corn, cotton, soybean or sugar beet.

Glufosinate 280 is only foliar-active with little or no activity in soil. Weeds that emerge after application will not be controlled. Apply Glufosinate 280 to actively growing weeds as described in the Weed Control for Row Crops section to get maximum weed control. Uniform, thorough spray coverage is necessary to achieve consistent weed control. Necrosis of leaves and young shoots occur within 2 to 4 days after application under good growing conditions.

•Glufosinate 280 is rainfast four (4) hours after application to most weed species; therefore, rainfall within four (4) hours may necessitate retreatment or may result in reduced weed control.

•Applications should be made between dawn and 2 hours before sunset to avoid the possibility of reduced lambsquarters and velvetleaf control.

•Weed control may be reduced if application is made when heavy dew, fog and mist/rain are present; or when weeds are under stress due to environmental conditions such as drought, cool temperatures or extended periods of cloudiness.

•To maximize weed control, do not cultivate from 5 days before an application to 7 days after an application.

### **ROTATIONAL CROP RESTRICTIONS\***

Rotational crop planting intervals following application of Glufosinate 280 are listed below. Failure to comply with these restrictions may result in illegal residues in rotated crops.

<b>Rotational Crop</b>	<b>Plant Back Interval (Minimum Rotational Crop Planting Interval from Last Application)</b>
Canola, Field Corn, Cotton, Rice, Soybeans, and Sugar beets	May be planted at any time
Root and Tuber Vegetables, Leafy Vegetables, Brassica Leafy Vegetables and Small Grains (barley, buckwheat, oats, rye, teosinte, triticale, and wheat)	70 Days
All Other Crops	180 Days

\*See Application Directions for Potato Vine Desiccation for Rotational Crop Restrictions specifically after Glufosinate 280 applications to potatoes.

### **APPLICATION AND MIXING PROCEDURES**

**Ground Application:** Glufosinate 280 should be applied broadcast in a minimum of 15 gallons of water per acre. Under dense weed/crop canopies, 20 to 40 gallons of water per acre should be used so that thorough spray coverage will be obtained. Apply Glufosinate 280 using nozzles and pressures that generate MEDIUM (about 250 to 350 microns) spray droplets category as reported by the nozzle manufacturer and in accordance to ASABE S 572. Do not use nozzles and pressures that result in COARSE sprays. FINE sprays should also be avoided to minimize spray drift risk. Boom height should be based on nozzle manufacturer recommendations. See the Spray Drift Management section of this label for additional information on proper application of Glufosinate 280.

**Aerial Application:** Poor coverage will result in reduced weed control. For optimal weed control, apply Glufosinate 280 in a minimum of 10 gallons per acre. Apply Glufosinate 280 using nozzles and pressures that generate MEDIUM (about 300 to 400 microns) spray droplets category as reported by the nozzle manufacturer and in accordance to ASABE S 572 based upon the selected air speed. Do not use nozzles and pressures that result in COARSE sprays. FINE sprays should also be avoided to minimize spray drift risk. See the

Spray Drift Management section of this label for additional information on proper application of Glufosinate 280.

### COMPATIBILITY TESTING

If Glufosinate 280 is to be mixed with pesticide products not listed on this label, test the compatibility of the intended tank mixture prior to mixing the products in the spray tank. The following procedure assumes a spray volume of 25 gallons per acre. For other spray volumes, adjust the amount of the water used accordingly. Check compatibility as follows:

1. Place 1.0 pint of water from the source that will be used to prepare the spray solution in a clear 1-quart jar.
2. For each pound of a dry tank mix partner to be applied per acre, add 1.5 teaspoons to the jar.
3. For each 16 fl oz of a liquid tank mix partner to be applied per acre, add 0.5 teaspoon to the jar.
4. For each 16 fl oz of Glufosinate® 280 to be applied per acre, add 0.5 teaspoon to the jar.
5. After adding all the ingredients, place a lid on the jar and tighten. Invert 10 times to mix.
6. Let the mixture stand for 15 minutes, and evaluate the solution for uniformity and stability. Look for separation, large flakes, precipitates, gels, heavy oily film on the jar, or other signs of incompatibility. If the tank mix partners are not compatible, do not use the mixture in a spray tank.
7. After compatibility testing is complete, dispose of any pesticide wastes in accordance with the Storage and Disposal section of this label.

### MIXING INSTRUCTIONS

**Tank Mix:** Glufosinate 280 may be applied in tank mix combinations with labeled rates of other products provided these other products are labeled for the timing and method of application for the crop to be treated. The tank mix partner must be used in accordance with the label limitations and precautions. No label dosage rates may be exceeded. Glufosinate 280 cannot be mixed with any product containing a label prohibition against such mixing. Refer to the specific crop section for rates and other restrictions.

Glufosinate 280 must be applied with properly calibrated and clean equipment. Glufosinate 280 is formulated to mix readily in water. Prior to adding Glufosinate 280 to the spray tank, ensure that the spray tank is thoroughly clean, particularly if a herbicide with the potential to injure crops was previously used (see Cleaning Instructions).

Mix Glufosinate 280 with water to make a finished spray solution as follows:

1. Fill the spray tank half full with water.
2. Start agitation.

3. If mixing with a flowable/wettable powder tank mix partner. Prepare a slurry of the proper amount of the product in a small amount of water. Add the slurry to the spray tank.
4. Add the appropriate amount of ammonium sulfate (AMS) to the spray tank.
5. If mixing with a liquid tank mix partner, add the liquid mix partner next.
6. Complete filling the spray tank with water.
7. Add the proper amount of Glufosinate 280 and continue agitation.
8. If foaming occurs, use a silicone-based antifoam agent.

Ensure that all spray system lines including pipes, booms, etc. have the correct concentration of spray solution by flushing out the spray system lines before starting the crop application.

If tank mix partners on this label are added, maintain good agitation at all times until contents of the tank are sprayed. If the spray mixture is allowed to settle, thorough agitation is required to resuspend the mixture before spraying is resumed. Keep bypass line on or near bottom of tank to minimize foaming. Screen size in nozzles or line strainers must be 50 mesh or larger.

### **CLEANING INSTRUCTIONS**

Before using Glufosinate 280, thoroughly clean bulk storage tank, refillable tank, nurse tanks, spray tank, lines, and filter, particularly if a herbicide with the potential to injure crops was previously used. Equipment should be thoroughly rinsed using a commercial tank cleaner.

After using Glufosinate 280, triple rinse the spray equipment and clean with a commercial tank cleaner before using for crops not labeled LibertyLink. Make sure any rinsate or foam is thoroughly removed from spray tank and boom. Rinsate may be disposed following the pesticide disposal directions on this label.

### **SPRAY DRIFT MANAGEMENT**

Spray drift may result in injury to non target crops or vegetation. To avoid spray drift, do not apply when wind speed is greater than 10 MPH or during periods of temperature inversions. Do not apply when weather conditions, wind speed, or wind direction may cause spray drift to non-target areas. **AVOIDING SPRAY DRIFT AT THE APPLICATION SITE IS THE RESPONSIBILITY OF THE APPLICATOR.**

- All aerial and ground application equipment must be properly maintained and calibrated using appropriate carriers.
- For all non-aerial applications, wind speed must be measured adjacent to the application site, on the upwind side, immediately prior to application.

**Sensitive Areas:** The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, known habitats for threatened or endangered species, non-target crops) is minimal (e.g., when wind is blowing away from the sensitive areas).



Do not apply under circumstances where possible drift to unprotected persons or to food, forage, or other plantings that might be damaged or crops thereof rendered unfit for sale, use or consumption can occur.

**Aerial Drift Management:** The following drift management requirements must be followed to avoid off-target drift movement from aerial applications to agricultural field crops.

1. The distance of the outer most nozzles on the boom must not exceed 3/4 the length of the wingspan or rotor.
2. Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.

Where states have more stringent regulations, they must be observed. The applicator should be familiar with and take into account the information covered in the Aerial Drift Reduction Advisory Information.

#### **AERIAL DRIFT REDUCTION ADVISORY INFORMATION**

**Information on Droplet Size:** The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions on next page). **AVOIDING SPRAY DRIFT AT THE APPLICATION SITE IS THE RESPONSIBILITY OF THE APPLICATOR.**

#### **Controlling Droplet Size:**

**Volume:** Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.

**Pressure:** Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.

**Number of Nozzles:** Use the minimum number of nozzles that provide uniform coverage.

**Nozzle Orientation:** Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential.

**Nozzle Type:** Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

**Boom Length:** For some use patterns, reducing the effective boom length to less than 3/4 of the wingspan or rotor length may further reduce drift without reducing swath width.

**Application Height:** Applications should not be made at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

**Swath Adjustment:** When applications are made with a crosswind, the swath will be displaced downward. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.)

**Wind:** Drift potential is lowest between wind speeds of 2 -10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Applications should be avoided below 2 miles per hour due to variable wind direction and high inversion potential. NOTE: Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

**Temperature and Humidity:** When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry. Avoid spraying during conditions of low humidity and/or high temperatures.

**Temperature Inversions:** Do not make aerial or ground applications into areas of temperature inversions. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

**APPLICATION DIRECTIONS FOR USE ON LISTED TREE, VINE, AND BERRY CROPS**  
Apply Glufosinate 280 to the tree, vine, and berry crops listed below. Uniform, thorough spray coverage is necessary to achieve consistent weed control.

#### **REGISTERED CROPS**

- Tree Nuts: almonds, filberts, hickory nuts, macadamia nuts (bush nuts), pecans, pistachios, and walnuts

- Tree Fruits: apples
- Vineyards: all grape varieties (table, wine, and raisins)
- Bushberries: blueberry, currant, elderberry, gooseberry, and huckleberry
- Other Berries: lingonberry, juneberry, and salal

### APPLICATION RATE AND TIMING

For best results, apply to emerged, young, actively growing weeds. Warm temperatures, high humidity, and bright sunlight improve the performance of Glufosinate 280. Refer to the Weed Control for Row Crops section of this label for selection of the proper rate dependent upon weed species present and size. Weeds under stress or in dense populations will require application at the highest specified label use rate. Stressed conditions also include prior treatments of other contact or systemic herbicides. Do not retreat these weeds with Glufosinate 280 until sufficient regrowth has occurred.

Apply Glufosinate 280 as a directed spray to control undesirable vegetation in tree, vine and berries listed on this label. Apply as a broadcast, banded, or spot treatment application depending on the situation to control weeds listed under the heading "Weeds Controlled in Tree, Vine and Berry crops". Avoid direct spray or drift to desirable vegetation. Regrowth may occur due to the weed stage of growth at application, low use rate, or environmental conditions. Repeat applications of Glufosinate 280 may be necessary to control plants generating from underground parts or seed.

Avoid contact of Glufosinate 280 solution, spray, drift or mist with green bark, stems, or foliage, as injury may occur to trees and vines. **Only trunks with callused, mature brown bark should be sprayed unless protected from spray contact by nonporous wraps, grow tubes or waxed containers. Contact of Glufosinate 280 with parts of trees or vines other than mature brown bark can result in serious damage.**

### Application Methods for Broadcast Applications

Apply Glufosinate 280 at the rates listed below for broadcast applications based on weed size and stage of growth.

Weed Size and Stage	Glufosinate 280 Rate
Weeds < 3" in height	48 fl oz/A
Weeds < 6" in height pre-tiller grasses	56 fl oz/A
Weeds > 6" in height and/or grasses that have tillered	56-82 fl oz/A

### Application Methods for Banded Spray Applications

Banded applications may be used using the following formula to calculate the amount of herbicide needed for orchard or vineyard strip sprays:

$$\frac{\text{Band width in inches}}{\text{Row width in inches}} \times \text{Rate per acre broadcast} = \text{Amount of herbicide needed for treatment}$$

### Application Methods for Spot or Directed-Spray Applications

For spot or directed spray application, mix Glufosinate 280 at 1.7 fl oz of product per gallon of water. Apply to undesirable vegetation foliage until wet but prior to runoff. Ensure uniform and complete coverage. Thoroughly clean the sprayer following use. DO NOT make spot or directed spray applications to tree or vine trunk as injury may occur.

## Weeds Controlled in Tree, Vine and Berry Crops

### Broadleaf Weeds

Alkali sida	Fleabane, annual	Morningglory, entireleaf	Redmaids
Ammannia, purple	Goosefoot	Morningglory, ivyleaf	Shepherd's-Purse
Arrowhead,	Gromwell, field	Morningglory, pitted	Smartweed,
California	Groundcherry,	Mullein, turkey	Pennsylvania
Buckwheat, wild	cutleaf	Mustard, wild	Sowthistle, annual
Buffalobur	Groundsel, common	Nettle	Spurge, prostrate
Burclover, California	Henbit	Nightshade, black	Starthistle, yellow
Carpetweed	Jimsonweed	Nightshade, eastern	Sunflower, common
Chickweed, common	Knotweed	black	Sunflower, prairie
Chinese thornapple	Kochia	Nightshade, hairy	Sunflower, volunteer
Cocklebur, common	Lambsquarters,	Pennycress	Swinecress
Cudweed	common	Pigweed, redroot	Thistle, Russian
Cutleaf	Lettuce, miner's	Pineapple-weed	Turnip, wild
eveningprimrose	Lettuce, prickly	Puncturevine	Velvetleaf
Dodder	London rocket	Purslane, common	Vervain
Eclipta	Mallow, common	Radish, wild	Vetch
Fiddleneck	Malva (little mallow)	Ragweed, common	Virginia copperleaf
Filaree	Marestail	Ragweed, giant	Willowherb, panicle
Filaree, redstem	Mayweed		

### Grass Weeds

Barnyardgrass	Crabgrass, smooth	Junglerice	Shattercane
Bluegrass, annual	Cupgrass, woolly	Oat, wild	Sprangletop
Brome, ripgut	Foxtail, giant	Panicum, fall	Stinkgrass
Bromegrass, downy	Foxtail, green	Panicum, Texas	Wheat, volunteer
Canarygrass	Foxtail, yellow	Rush, toad**	Windgrass
Chess, soft	Goosegrass	Ryegrass, annual	Witchgrass
Crabgrass, large	Johnsongrass,	Sandbur, field	
	seedling		

### Biennial and Perennial Weeds

Aster, white heath	Dallisgrass	Mullein, common	Rocket, yellow
Bindweed, field	Dandelion	Mustard, tansy	Rose, wild
Bindweed, hedge	Dock, curly	Nutsedge, purple	<i>Rubus</i> spp.
Bluegrass, Kentucky	Dogbank (hemp)	Nutsedge, yellow	Spurge, leafy
Bromegrass, smooth	Fescue	Onion, wild	Thistle, bull

Bulrush** Burdock Canada thistle Clover, Alsike Clover, red Clover, white	Goldenrod, gray Guineagrass Horsetail Lovegrass Mugwort	Orchardgrass Paragrass Plantain Poison ivy/oak Quackgrass	Thistle, musk Torpedograss Vaseygrass Woodsorrel Yarrow, common
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\*\*indicates suppression

## RESTRICTIONS TO THE DIRECTIONS FOR USE ON TREE, VINE, AND BERRY CROPS

1. **DO NOT** apply more than 164 fl oz of Glufosinate 280 per acre (3 lbs ai/A) to berry bushes in a 12-month period.
2. **DO NOT** apply more than 246 fl oz of this product per acre to tree nuts, vines, and tree fruits in any calendar year.
3. **DO NOT** graze, harvest, and/or feed treated orchard cover crops to livestock.
4. **DO NOT** apply this product through any type of irrigation system.
5. **DO NOT** apply this product aerially to tree, berry, or vine crops.
6. **DO NOT** apply this product within 14 days of nut, apple, berry or grape harvest.
7. **DO NOT** make spot spray applications to apple suckers, as tree injury may occur.

## TANK MIX PARTNER

Glufosinate 280 does not provide residual weed control or control of unexposed plant parts. Certain herbicide tank mixes may aid in the performance of Glufosinate 280 or be added to provide residual herbicide activity. No additional surfactant is needed with any tank mix partner. Glufosinate 280 may be applied in tank mix combinations with labeled rates of other products provided these other products are labeled for the timing and method of application for the crop to be treated. The tank mix partner must be used in accordance with the label limitations and precautions. No label dosage rates may be exceeded. Glufosinate 280 cannot be mixed with any product containing a label prohibition against such mixing.

Chateau	Karmex® DF	Simazine 80W	Solicam® DF
Devrinol® 50WP	Princep® 4L	Simazine 90	Surflan® A.S.
Goal® 1.6E	Simazine 4L	Sinbar® 80W	

## APPLICATION DIRECTIONS FOR POTATO VINE DESICCATION

### APPLICATION RATE AND TIMING

Apply Glufosinate 280 at the beginning of natural senescence of potato vines. Apply 21 fl oz/A. Do not split this application or apply more than one application per harvest. Potato varieties with heavy or dense vines may require an application of another desiccation product to complete vine desiccation.

Thorough coverage of the potato vines to be desiccated is essential. Use a sufficient volume of water (20 to 100 gpa) to obtain a thorough coverage of the potato vines. Vary the gallons of water per acre and the spray pressure as indicated by the density of the potato vines to assure thorough spray coverage. Increase the spray volume to at least 30 gallons of water per acre when the potato vine canopy is dense or under cool and dry conditions. Apply Glufosinate 280 with the spray boom as low as possible to achieve thorough coverage of the potato vines for best control and to minimize drift potential.

#### RESTRICTIONS TO THE DIRECTIONS FOR USE IN POTATO VINE DESICCATION

1. **DO NOT** apply more than 21 fl oz/A to potato vines per season.
2. **DO NOT** harvest potatoes until 9 days or more after application of Glufosinate® 280.
3. **DO NOT** apply to potatoes grown for seed.
4. Canola, corn, cotton, rice, soybean, and sugar beets may be planted at any time after the application of Glufosinate 280 as a potato vine desiccant.
5. **DO NOT** plant treated areas to wheat, barley, buckwheat, millet, oats, rye, sorghum, and triticale until 30 or more days after an application of Glufosinate® 280 as a potato vine desiccant.
6. **DO NOT** plant treated areas to crops other than those listed in this use precautions section until 120 or more days after an application of Glufosinate® 280 as a potato vine desiccant.

#### WEED CONTROL FOR ROW CROPS

Rates in ounces of formulated product per acre for the control of weeds at selected heights are shown in the weed control tables. In weed populations with mixed species, apply at a rate needed for the species that requires the highest rate.

Broadleaf Weed Control					
Weed Species	Maximum Weed Height or Diameter (Inches)		Weed Species	Maximum Weed Height or Diameter (Inches)	
	22 fl oz/A	29 fl oz/A <sup>ab</sup>		22 fl oz/A	29 fl oz/A <sup>ab</sup>
Amaranth, Palmer <sup>2</sup>	3	4	Morningglory, sharppod <sup>2</sup>	2	4
Anoda, spurred	3	5	Morningglory, smallflower <sup>2</sup>	4	6
Beggarweed, Florida	4	5	Morningglory, tall <sup>2</sup>	6	8
Black medic	5	7	Mustard, wild	4	6
Blueweed, Texas	5	7	Nightshade, black	4	6
Buckwheat, wild	6	7	Nightshade, eastern black	6	8
Buffalobur	6	7	Nightshade, hairy	6	8
Burcucumber	6	10	Pennycress (stinkweed)	4	6
Catchweed bedstraw (cleavers)	2	4	Pigweed, redroot <sup>2</sup>	3	4

Carpetweed	4	6	Pigweed, prostrate <sup>2</sup>	3	4
Chickweed, common	6	8	Pigweed, spiny <sup>2</sup>	3	4
Cocklebur, common	6	14	Pigweed, smooth <sup>2</sup>	3	4
Copperleaf, hophornbeam	4	6	Pigweed, tumble <sup>2</sup>	3	4
Cotton, volunteer	6	8	Puncturevine	4	6
Croton, tropic	3	5	Purslane, common	2	4
Croton, woolly	2	4	Pusley, Florida	<b>S</b>	3
Eclipta	4	6	Ragweed, common	6	10
Devil's claw	2	4	Ragweed, giant	6	12
Fleabane, annual	6	8	Senna coffee	4	6
Galinsoga, hairy	6	8	Sesbania, hemp	6	8
Galinsoga, smallflower	6	7	Shepherd's-purse	6	8
Groundcherry, cutleaf	4	5	Sicklepod (java bean)	4	6
Geranium, cutleaf	4	6	Sida, prickly	4	5
Hempnettle	4	6	Smartweed, Pennsylvania	6	14
Horsenettle, Carolina <sup>3</sup>	2	4	Smellmelon	4	6
Jimsonweed	6	10	Sowthistle, annual	6	8
Knotweed	3	5	Soybeans, volunteer <sup>1</sup>	6	8
Kochia <sup>2</sup>	4	6	Spurge, prostrate	2	4
Ladysthumb	6	14	Spurge, spotted	2	4
Lambsquarters, common <sup>2</sup>	4	6	Starbur, bristly	4	6
Mallow, common	4	6	Sunflower, common	6	14
Mallow, Venice	6	8	Sunflower, prairie	3	5
Marestail <sup>3</sup>	<b>S</b>	6-12	Sunflower, volunteer	6	10
Marshelder, annual	4	6	Thistle, Russian <sup>3</sup>	<b>S</b>	6-12
Morningglory, entireleaf <sup>2</sup>	6	8	Velvetleaf <sup>2</sup>	3	4
Morningglory, ivyleaf <sup>2</sup>	6	8	Waterhemp, common <sup>2</sup>	4	5
Morningglory, pitted <sup>2</sup>	6	8	Waterhemp, tall <sup>2</sup>	4	5

<sup>a</sup>In cotton, Glufosinate 280 may be applied at 29 fl oz/A three times per season.

<sup>b</sup>Do not apply more than 22 fl oz/A of Glufosinate 280 post emergence in a single application to canola and corn.

**S** Indicates suppression

<sup>1</sup>Volunteer LibertyLink crops from the previous season will not be controlled.

<sup>2</sup>For applications to corn, tank mixing with atrazine may enhance weed control of this species.

<sup>3</sup>May require sequential applications for control.

Grass Weed Control					
Weed Species	Maximum Weed Height or Diameter (Inches)		Weed Species	Maximum Weed Height or Diameter (Inches)	
	22 fl	29 fl		22 fl	29 fl

	oz/A	oz/A <sup>ab</sup>		oz/A	oz/A <sup>ab</sup>
Barley, volunteer <sup>3</sup>	3	4	Millet, wild proso	6	7
Barnyardgrass	3	5	Millet, proso volunteer	6	7
Bluegrass, annual	3	5	Oat, wild <sup>2</sup>	3	4
Corn, volunteer <sup>1</sup>	10	12	Panicum, fall	3	5
Crabgrass, large <sup>2</sup>	3	5	Panicum, Texas	4	6
Crabgrass, smooth <sup>2</sup>	3	5	Rice, red	4	6
Cupgrass, woolly	6	12	Rice, volunteer <sup>1</sup>	4	6
Foxtail, bristly	6	8	Sandbur, field <sup>2</sup>	S	2
Foxtail, giant	6	12	Shattercane	6	8
Foxtail, green	6	12	Signalgrass, broadleaf	3	5
Foxtail, robust purple	6	8	Sprangletop	4	6
Foxtail, yellow <sup>2</sup>	3	4	Sorghum, volunteer	6	8
Goosegrass <sup>3</sup>	2	3	Stinkgrass	4	6
Johnsongrass, seedling	3	5	Wheat, volunteer <sup>2</sup>	4	5
Junglerice	3	5	Witchgrass	4	6

<sup>a</sup>In cotton, Glufosinate 280 may be applied at 29 fl oz/A three times per season.

<sup>b</sup>Do not apply more than 22 fl oz/A of Glufosinate 280 post emergence to canola and corn.

S Indicates suppression

<sup>1</sup>Volunteer LibertyLink crops from the previous season will not be controlled. A timely cultivation 7 to 10 days after an application and/or retreatment 10-21 days after the first application for controlling dense clumps of volunteer corn or rice.

<sup>2</sup>For best control of yellow foxtail, field sandbur, crabgrass, and wild oats, treat prior to tiller initiation.

<sup>3</sup>A sequential application may be necessary for control.

Biennial and Perennial Weeds			
For control of the biennial and perennial weeds listed below, apply tank mix partners or sequential applications of Glufosinate 280 (22 fl oz/A followed by 22 fl oz/A).			
Alfalfa	Burdock	Goldenrod, gray*	Orchardgrass
Artichoke, Jerusalem	Bursage, woolyleaf	Johnsongrass, rhizome	Poinsettia, wild
Bermudagrass	Chickweed, mouse-ear	Milkweed, common*	Pokeweed
Bindweed, field	Clover, Alsike	Milkweed, honeyvine*	Quackgrass*
Bindweed, hedge	Clover, red	Muhly, wirestem*	Sowthistle, perennial
Bluegrass, Kentucky	Dandelion	Nightshade, silverleaf	Thistle, bull
Blueweed, Texas	Dock, smooth	Nutsedge, purple*	Thistle, Canada
Bromegrass, smooth	Dogbane, hemp*	Nutsedge, yellow*	Timothy*
			Wormwood, biennial

\*Suppression Only



### APPLICATION DIRECTIONS FOR BURNDOWN USE

Glufosinate 280 may be applied as a burndown treatment prior to planting or prior to emergence of any conventional or transgenic variety of canola, corn, cotton, soybean or sugar beet. Apply a minimum of 29 fl oz/A of Glufosinate 280 for burndown of existing weeds just prior to planting or prior to emergence of canola, corn, cotton, soybean, or sugar beets. For best results, apply to emerged, young, actively growing weeds. Warm temperatures, high humidity, and bright sunlight improve the performance of Glufosinate 280. Refer to the Weed Control for Row Crops section of this label for selection of the proper rate dependent upon weed species present and size.

- In cotton, if environmental conditions prevent timely applications, a single application may be made of up to 43 fl oz/A of Glufosinate 280. If more than 29 fl oz/A are used in any single application, the season total may not exceed 72 fl oz/A, including all application timings.
- In canola, corn, soybean, and sugar beets, if environmental conditions prevent timely applications, a single application may be made of up to 36 fl oz/A of Glufosinate 280. No additional applications of Glufosinate 280 may be made post emergence to the crop during the growing season.

	Burndown	In-Season Applications	Season Max
Cotton Use Pattern 1	29 fl oz/A	2 applications at 22-29 fl oz/A	87 fl oz/A
Cotton Use Pattern 2	30-43 fl oz/A	1 application at 22-29 fl oz/A	72 fl oz/A
Canola, Corn, Soybean, Sugar beets	29-36 fl oz/A	None	36 fl oz/A

### APPLICATION DIRECTIONS FOR USE ON CANOLA

Apply Glufosinate 280 only to canola labeled as LibertyLink. Uniform, thorough spray coverage is necessary to achieve consistent weed control.

### APPLICATION RATE AND TIMING

For best results, apply to emerged, young, actively growing weeds. Warm temperatures, high humidity, and bright sunlight improve the performance of Glufosinate 280. Refer to the Weed Control for Row Crops section of this label for selection of the proper rate dependent upon weed species present and size. For optimal yield, early season weed removal is important.

Applications of Glufosinate 280 on canola may be made from the cotyledon stage up to the early bolting stage of the canola. Slight discoloration of the canola may be visible after application. This effect is temporary and will not influence crop growth, maturity or yield.

Apply Glufosinate 280 at 22 fl oz/A per application. A second application of Glufosinate® 280 may be needed to control weeds that have not yet emerged at the time of application.

#### **RESTRICTIONS TO THE DIRECTIONS FOR USE ON CANOLA**

- **DO NOT** use on canola in the states of Alabama, Delaware, Georgia, Kentucky, Maryland, New Jersey, North Carolina, South Carolina, Tennessee, Virginia and West Virginia.
- **DO NOT** apply more than two applications of Glufosinate 280 per growing season. Sequential applications must be at least 10-14 days apart.
- **DO NOT** apply Glufosinate 280 within 65 days of harvesting canola.
- **DO NOT** apply more than 44 fl oz/A of Glufosinate® 280 per growing season.
- If Glufosinate 280 was used in a burndown application, no post emergence applications may be applied to the crop.
- **DO NOT** graze the treated crop or cut for hay.
- **DO NOT** apply Glufosinate 280 if canola shows injury from prior herbicide applications or environmental stress (drought, excessive rainfall, etc.).
- **DO NOT** apply this product through any type of irrigation system.
- Refer to the "Rotational Crop Restrictions" section under the "Information" heading of this label for the appropriate rotational crop plant back intervals.

#### **SPRAY ADDITIVES**

Glufosinate 280 must be applied with ammonium sulfate (AMS). Use only fine feed grade or spray grade AMS at 3 pounds per acre. Anti-foams or drift control agents may be added if needed. Use of additional surfactants or crop oils may increase risk of crop response.

#### **CANOLA TANK MIX**

Glufosinate 280 at 22 fl oz/A plus AMS may be used in tank-mix combination with certain herbicides for improved control of larger than labeled grasses. Glufosinate 280 may be applied in tank mix combinations with labeled rates of other products provided these other products are labeled for the timing and method of application for the canola to be treated. The tank mix partner must be used in accordance with the label limitations and precautions. No label dosage rates may be exceeded. Glufosinate 280 cannot be mixed with any product containing a label prohibition against such mixing. The AMS rate may be reduced to 1.5 lb/A when Glufosinate® 280 is tank mixed with a reduced rate of one of the grass herbicides specified below.

<b>Tank Mix Partner</b>	<b>Rate (fl oz/A)</b>
Assure® II	4 -5 fl oz/A
Poast®	6 -8 fl oz/A
Select® 2EC	2 -3 fl oz/A
Select Max™	4 -6 fl oz/A

#### **APPLICATION DIRECTIONS FOR USE ON FIELD CORN AND SILAGE CORN**

Apply Glufosinate 280 only to corn labeled as LibertyLink. Uniform, thorough spray coverage is necessary to achieve consistent weed control.

## **APPLICATION RATE AND TIMING**

For best results, apply to emerged, young, actively growing weeds. Warm temperatures, high humidity, and bright sunlight improve the performance of Glufosinate 280. Refer to the Weed Control for Row Crops section of this label for selection of the proper rate dependent upon weed species present and size. For optimal yield, early season weed removal is important.

Applications of Glufosinate 280 on corn may be made with over-the-top broadcast or drop nozzles from emergence until corn is 24 inches tall or in the V-7 stage of growth, i.e., 7 developed collars, whichever comes first. For corn 24 inches to 36 inches tall, only apply Glufosinate 280 using ground application and drop nozzles and avoid spraying into the whorl or leaf axils of the corn stalks. Applications of Glufosinate 280 following the use of soil-applied insecticides will not injure corn.

Apply Glufosinate 280 at 22 fl oz/A per application. A second application of Glufosinate 280 or a tank mix application with a residual herbicide will be needed to control weeds that have not yet emerged at the time of application.

## **RESTRICTIONS TO THE DIRECTIONS FOR USE ON FIELD CORN AND SILAGE CORN**

- **DO NOT** apply Glufosinate 280 within 60 days of harvesting corn forage and within 70 days of harvesting corn grain and corn fodder.
- **DO NOT** apply more than two applications of Glufosinate 280 to the corn crop. Sequential applications must be at least 10-14 days apart.
- **DO NOT** apply more than 44 fl oz/A of Glufosinate 280 on corn per growing season.
- If Glufosinate 280 was used in a burndown application, no post emergence applications may be applied to the crop.
- **DO NOT** use nitrogen solutions as spray carriers. A silicone-based antifoam agent may be added if needed.
- **DO NOT** apply Glufosinate 280 if corn shows injury from prior herbicide applications or environmental stress (drought, excessive rainfall, etc.).
- **DO NOT** apply this product through any type of irrigation system.
- Refer to the "Rotational Crop Restrictions" section under the "Information" heading of this label for the appropriate rotational crop plant back intervals.

## **SPRAY ADDITIVES**

For corn, Glufosinate 280 must be applied with ammonium sulfate (AMS). Use only fine feed grade or spray grade AMS at 3 lbs per acre (17 lbs/100 gallons). When temperatures exceed 85° F, the rate of AMS can be reduced to 1.5 lbs per acre (8.5 lbs/100 gallons) to reduce potential leaf burn.

Use of additional surfactants or crop oils may increase risk of crop response.

## **CORN TANK MIX**

Certain herbicide tank mixes may aid in the performance of Glufosinate 280. No additional surfactant is needed with any tank mix partner. Glufosinate 280 may be applied in tank mix combinations with labeled rates of other products provided these other products are labeled for the timing and method of application for the corn to be treated. The tank mix partner must be used in accordance with the label limitations and precautions. No label dosage rates may be exceeded. Glufosinate 280 cannot be mixed with any product containing a label prohibition against such mixing.

#### **Corn Herbicide Tank Mix Partners**

2,4-D	Camix®*	Laudis®	NorthStar™	Spirit®
acetochlor	Distinct™	Lexar®*	pendimethalin**	Status®
Aim™*	Guardman Max®	Lumax®*	Permit®	Yukon®
atrazine	Hornet® WDG	metolachlor*	Python® WDG	
Callisto™	Impact®	nicosulfuron	s-metolachlor*	

\*These products are tank mixed at 1/2 the use rate with Glufosinate 280 to reduce risk of crop response.

\*\*Tank mixing with pendimethalin may result in reduced control of barnyardgrass, fall panicum, field sandbur, yellow foxtail, and volunteer corn.

#### **APPLICATION DIRECTIONS FOR USE ON COTTON**

Uniform, thorough spray coverage is necessary to achieve consistent weed control. Glufosinate 280 may be applied as a broadcast, over-the-top, post-emergence spray or as a directed spray only to LibertyLink cotton. This product may be applied post-emergence to non-LibertyLink cotton varieties or cultivars by using equipment designed to minimize contact of the spray with the cotton foliage. See the Application Methods on Non-LibertyLink Cotton section for selection of shielding equipment. Severe injury or death may result if the Glufosinate 280 contacts the foliage or stems of cotton NOT labeled as LibertyLink.

#### **APPLICATION RATE AND TIMING**

For best results, apply to emerged, young, actively growing weeds. Warm temperatures, high humidity, and bright sunlight improve the performance of Glufosinate 280. Refer to the Weed Control for Row Crops section of this label for selection of the proper rate dependent upon weed species present and size. For optimal yield, early season weed removal is important.

Apply Glufosinate 280 to cotton from emergence up to the early bloom stage at 22 to 29 fl oz/A. Should environmental conditions prevent a timely herbicide application, a single application of up to 43 fl oz/A of Glufosinate 280 may be made to cotton. If more than 29 fl oz/A are used in any single application, the seasonal total may not exceed 72 fl oz/A, including all application timings. See Restrictions to the Directions for use on Cotton below for additional information.

Refer to the Weed Control for Row Crops section of this label for selection of the proper rate dependent upon weed species present and size. In weed populations with mixed

species, select the highest rate required to control all the species. Volunteer LibertyLink crop plants (corn, rice, cotton, soybeans, sugar beets) from the previous season will not be controlled by applications of Glufosinate 280. A repeat application of Glufosinate 280 or tank mixes with a residual herbicide will be needed to control weeds that have not emerged at the time of application. See the Tank Mix section for Use on Cotton of this label to select suitable tank mix partners.

Use Pattern	1st Application	2nd Application	3rd Application	Season Maximum
Option 1	22-29 fl oz/A	22-29 fl oz/A	22-29 fl oz/A	87 fl oz/A
Option 2	30-43 fl oz/A	22-29 fl oz/A	None	72 fl oz/A

#### RESTRICTIONS TO THE DIRECTIONS FOR USE ON COTTON

- **DO NOT** apply Glufosinate 280 to cotton in Florida, South of Tampa (Florida Route 60), or in Hawaii, except for test plots or breeding nurseries.
- **DO NOT** apply Glufosinate 280 within 70 days prior to cotton harvest.
- Up to three applications of Glufosinate 280 may be made to cotton per season at a maximum application rate of 29 fl oz/A.
- **DO NOT** apply more than 87 fl oz (including all application timings) to cotton per season under this application scenario. Sequential applications must be at least 10-14 days apart.
- If environmental conditions prevent timely applications resulting in large weeds or heavy infestations, a single application of Glufosinate 280 at up to 43 fl oz/A may be made to cotton. **DO NOT** apply more than 43 fl oz of Glufosinate 280 in a single application under this use scenario. If a single application greater than 29 fl oz is made, a subsequent application not to exceed 29 fl oz may be made to cotton. The seasonal total use rate under this scenario may not exceed 72 fl oz of Glufosinate 280. Sequential applications should be at least 10-14 days apart.
- **DO NOT** apply this product through any type of irrigation system.
- Refer to the "Rotational Crop Restrictions" section under the "Information" heading of this label for the appropriate rotational crop plant back intervals.

#### APPLICATION METHODS TO LIBERTYLINK COTTON

Refer to the Weed Control for Row Crops to select the proper application rate based upon the weeds present and their size. Uniform and thorough spray coverage is required to achieve consistent weed control.

For ground application, apply Glufosinate 280 to LibertyLink cotton as an over-the-top foliar spray or as a spray directed to the lower one-third of the cotton stand.

#### APPLICATION METHODS TO NON-LIBERTYLINK COTTON

Application of Glufosinate 280 to cotton varieties not labeled as LibertyLink requires the use of hooded spray equipment designed to minimize exposure of the spray to the cotton stand. A hooded sprayer directs the spray onto weeds, while shielding the cotton stand from contact. Use nozzles that provide uniform coverage within the treated area. Keep

hoods on these sprayers adjusted to protect desirable vegetation. Extreme care must be exercised to avoid exposure of the desirable vegetation to the spray.

With a hooded sprayer, the spray pattern is completely enclosed on the top and all 4 sides by a hood, thereby shielding the crop from the spray solution. This equipment must be set up and operated in a manner that avoids bouncing or raising the hoods off the ground in any way. The spray hoods must be operated on the ground or skimming across the ground. Tractor speed must be adjusted to avoid bouncing of the spray hoods. Avoid operation on rough or sloping ground where the spray hoods might be raised off the ground. If the hoods are raised, spray particles may escape and come into contact with the cotton, causing damage or destruction of the crop.

Herbicide rates and spray volumes are presented as broadcast equivalents and must be reduced in proportion to the area actually treated. Use the following formulas to calculate the correct rate and volume per planted (field) acre:

$\frac{\text{Band width in inches}}{\text{Row width in inches}}$	$\times \text{Broadcast RATE}$	$= \text{Amount of banded product}$
	$\text{per acre}$	$\text{needed per acre}$

$\frac{\text{Band width in inches}}{\text{Row width in inches}}$	$\times \text{Broadcast VOLUME}$	$= \text{Amount of banded product}$
	$\text{per acre}$	$\text{needed per acre}$

## POST-HARVEST

Glufosinate 280 may be applied as a post-harvest burndown treatment to fields (after cotton harvest). Up to 43 fl oz/A of Glufosinate 280 may be applied in a single application to control larger weeds growing in the crop at the time of harvest.

If more than 29 fl oz/A is used in a single application, the seasonal total may not exceed 72 fl oz/A, including all application timings. Refer to the Rotational Crop Restrictions section of this label for appropriate rotational crop information.

## COTTON TANK MIXTURES

Certain tank mixes may aid in the performance of Glufosinate 280. No additional surfactant is needed with any tank mix partner. Glufosinate 280 may be applied in tank mix combinations with labeled rates of other products provided these other products are labeled for the timing and method of application for the cotton to be treated. The tank mix partner must be used in accordance with the label limitations and precautions. No label dosage rates may be exceeded. Glufosinate 280 cannot be mixed with any product containing a label prohibition against such mixing.

**LibertyLink Cotton:** For cotton tolerant to Glufosinate 280, Dual Magnum® or Staple® Herbicide may be tank-mixed with Glufosinate 280 and applied over-the-top post-emergence to enhance weed control and/or provide residual control.

**All Cotton Types:** The following herbicides may be mixed with Glufosinate 280 for hooded-spray application to enhance weed control and/or provide residual weed control:

Aim™	Cotoran® DF	Dual Magnum®	Pendimax™ 3.3	Staple®
Caparol® 4L	Direx® 4L	Glyphosate	Prowl® 3.3EC	
Cotoran® 4L	Direx® 80DF	Karmex® DF	Select Max™	

#### **APPLICATION DIRECTIONS FOR IN-SEASON USE ON SOYBEANS**

Apply Glufosinate 280 only to soybeans designated as LibertyLink. Uniform, thorough spray coverage is necessary to achieve consistent weed control.

#### **APPLICATION RATE AND TIMING**

For best results, apply to emerged, young, actively growing weeds. Warm temperatures, high humidity, and bright sunlight improve the performance of Glufosinate 280. Refer to the Weed Control for Row Crops section of this label for selection of the proper rate dependent upon weed species present and size. Adding ammonium sulfate with Glufosinate 280 may improve weed control if weeds are under stress. For optimal yield, early season weed removal is important.

Applications of Glufosinate 280 on soybeans may be made from emergence up to but not including the bloom growth stage.

Apply Glufosinate 280 at 22 – 29 fl oz/A per application. See weed chart to determine rate. Should environmental conditions prevent a timely herbicide application, a single application of up to 36 fl oz/A may be made to soybeans followed by one additional application at a maximum of 29 fl oz/A with a seasonal maximum of 65 fl oz/A. Glufosinate 280 may be applied alone or in a tank mix application with a residual herbicide to control weeds that have not yet emerged at the time of application.

Although timely post applications of Glufosinate 280 can provide complete weed control, residual herbicides at burndown, planting or tank mixed with Glufosinate 280 help ensure optimal weed management, particularly if environmental conditions delay timely post applications. Residual herbicides can also reduce early season weed competition and are a key element of good weed resistance management practices.

Use Pattern Rate Ranges		
1st Application	2nd Application	Season Maximum
22 – 36 fl oz/A	22 – 29 fl oz/A	65 fl oz/A

#### **APPLICATION DIRECTIONS FOR BURNDOWN USE ON SOYBEANS**

Glufosinate 280 may be applied as a burndown treatment prior to planting or prior to emergence of any conventional or transgenic variety of soybean. Apply a minimum of 29 fl oz/A for burndown of existing weeds just prior to planting or prior to emergence of soybean. For best results, apply to emerged, young, actively growing weeds. Warm Temperatures, high humidity and bright sunshine improve the performance of Glufosinate

280. Refer to the Weed Control for Row Crops section of this label for selection of the proper rate dependent upon weed species present and size.

In soybeans, if environmental conditions prevent timely applications, a single application may be made up to 36 fl oz/A of Glufosinate 280. If 29 – 36 fl oz/A are used in a single burndown application, one additional in-season application may be made at up to 29 fl oz/A. The season total may not exceed 65 fl oz/A, including all application timings.

Soybean Use Patterns	Burndown	In-Season Applications	Season Maximum
	29 – 36 fl oz/A	1 application at 22 – 29 fl oz/A	65 fl oz/A

#### RESTRICTIONS TO THE DIRECTIONS FOR USE ON SOYBEANS

- DO NOT** apply more than two applications of Glufosinate 280 to the soybean crop. Sequential applications must be at least 10-14 days apart.
- DO NOT** apply Glufosinate 280 within 70 days of harvesting soybean seed.
- DO NOT** apply more than 65 fl oz/A of Glufosinate 280 on soybeans per growing season.
- DO NOT** apply more than 36 fl oz/A of Glufosinate 280 in a single application per growing season to soybeans beyond the V3-V4 vegetative growth stage.
- DO NOT** graze the treated crop or cut for hay.
- DO NOT** use nitrogen solutions as spray carriers. A silicone-based antifoam agent may be added if needed.
- DO NOT** apply Glufosinate 280 if soybeans show injury from prior herbicide applications or environmental stress (drought, excessive rainfall, etc.).
- DO NOT** apply this product through any type of irrigation system.
- Refer to the "Rotational Crop Restrictions" section under the "Information" heading of this label for the appropriate rotational crop plant back intervals.

#### SOYBEAN TANK MIX

Certain herbicide tank mixes may aid in the performance of Glufosinate 280. No additional surfactant is needed with any tank mix partner. Glufosinate 280 may be applied in tank mix combinations with labeled rates of other products provided these other products are labeled for the timing and method of application for the soybean to be treated. The tank mix partner must be used in accordance with the label limitations and precautions. No label dosage rates may be exceeded. Glufosinate 280 cannot be mixed with any product containing a label prohibition against such mixing.

#### Soybean Herbicide Tank Mix Partners

Assure® II	Fomesafen 1.88	Poast® Plus	Select Max®
Classic®	Fusilade® DX	Pursuit®	Synchrony® XP
clethodim	Fusion®	Raptor™	Ultra Blazer®
Cobra®	Harmony®	Fomesafen 2SL	
Dual Magnum		Prefix	
Firstrate®	Phoenix™	Resource®	



## **APPLICATION DIRECTIONS FOR CORN, COTTON, AND SOYBEAN SEED PROPAGATION**

Glufosinate 280 may be applied to select out susceptible "segregates", i.e., corn, cotton, and soybean plants that are not tolerant to glufosinate-ammonium during seed propagation.

- **Corn:** Inbred lines, plants not possessing glufosinate-ammonium tolerance, will be severely injured or killed if treated with this herbicide. A hooded sprayer may be used to protect plants from coming into contact with the herbicide application. For the selection of tolerant corn "segregates", Glufosinate 280 may be applied at 22 fl oz/A plus AMS at 3 lb/A (17 lb/100 gallons) when corn is in the V-3 to V-4 stage of growth, i.e., 3 to 4 developed collars. A second treatment of 22 fl oz/A plus AMS at 3 lbs/A may be applied when the corn is in the V-6 to V-7 stage of growth or up to 24" tall. Sequential applications should be at least 10-14 days apart. When temperatures exceed 85° F, the rate of AMS can be reduced to 1.5 lbs/A (8.5 lbs/100 gallons) to reduce potential leaf burn.
- **Cotton:** Glufosinate 280 may also be used in cotton seed propagation as a foliar spray to selectively eliminate cotton plants that do not carry a gene that imparts tolerance to glufosinate-ammonium and as such, can be applied to remove susceptible segregates during cotton seed propagation. Breeding material not possessing the glufosinate-ammonium tolerance gene will be severely injured or killed if treated with this herbicide. See "Application Use Directions for Use on Cotton" for use rates and application timing.
- **Soybeans:** For the selection of tolerant soybean "segregates", Glufosinate 280 may be applied at up to 22 fl oz/A when soybean is in the third trifoliate stage. A second treatment of 22 fl oz/A may be applied up to but not including the bloom growth stage of soybean. Sequential applications should be at least 10-14 days apart.

## **FALLOW FIELDS**

Glufosinate 280 may be used as a substitute for tillage in fallow fields to control or suppress weeds listed in the "Weed Control for Row Crops" section of this label.

Apply Glufosinate 280 at 22 or 29 fl oz/A to fallow fields to control specific weeds. Glufosinate 280 must be applied with ammonium sulfate. Tank mixes with 2,4-D, glyphosate or atrazine are recommended with Glufosinate 280 to enhance total weed control. When using Glufosinate® 280 in tank mix combinations, follow the precautions and directions of use of the most restrictive label. See the Application and Mixing Procedures section of this label for additional information on how to apply this product. See the Information section of this label for rotational crop restrictions.

## **FARMSTEADS**

When applied as recommended, Glufosinate 280 controls undesirable plant vegetation in non-crop areas around farmstead building foundations, shelter belts, along fences, and general nonselective farmstead weed control. Refer to the "Application Directions for Use on Listed Tree, Vine, and Berry Crops" section of this label for appropriate application broadcast and spot spray application rates and lists of weeds controlled.

#### **STORAGE AND DISPOSAL**

Do not contaminate water, food, or feed by storage or disposal.

**PESTICIDE STORAGE:** Do not use or store near heat or open flame. Keep the container tightly closed and dry in a cool, well-ventilated place. Storage temperature should not exceed 125° F. If storage temperature for bulk Glufosinate 280 is below 32° F, the material should not be pumped until its temperature exceeds 32° F. Protect against direct sunlight.

**PESTICIDE DISPOSAL:** Wastes resulting from the use of this product may be disposed of on-site or at an approved waste disposal facility.

#### **CONTAINER HANDLING:**

**[Rigid, Non-refillable containers small enough to shake (i.e., with capacities equal to or less than 5 gallons)]**

Non-refillable container. Do not reuse or refill this container. Offer for recycling, if available. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Once container is rinsed, then offer for recycling or reconditioning; or puncture and dispose of in a sanitary landfill, or by incineration; or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

**[All refillable container types (containers with capacities greater than 50 lbs)]**

Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning before refilling is the responsibility of the refiller. This is a sealed returnable container to be used only for Glufosinate 280. When this container is empty, it must not be opened, cleaned, or discarded. Empty containers must be returned to the original purchase location.

**[Bottom discharge Intermediate Bulk Container (IBC) (containers with capacities greater than 50 lbs)]**

Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning before refilling is the responsibility of the refiller. Pressure rinsing the container before final disposal is the responsibility of the person disposing of the container. Empty the remaining contents from the Intermediate Bulk Container (IBC) into application equipment or mix tank. Raise the bottom of the IBC by 1.5 inch on the side

which is opposite of the bottom discharge valve to promote more complete product removal. Completely remove the top lid of the IBC. Use water pressurized to at least 40 PSI to rinse all interior portions. Continuously pump or drain rinsate into application equipment or rinsate collection system while pressure rinsing. Continue pressure rinsing for 2 minutes or until rinsate becomes clear. Replace the lid and close bottom valve. Contact your Ag retailer or Orion GFS for container return, disposal and recycling recommendations.

### **CONDITIONS OF SALE AND LIMITED WARRANTY**

The Directions for Use are believed to be reliable and must be followed carefully. However, it is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials or use of the product in a manner inconsistent with its labeling, all of which are beyond the control of Orion GFS, LLC or the SELLER. To the extent consistent with applicable law, all such risks shall be assumed by the buyer.

Orion GFS, LLC warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes referred to in the Directions for Use, subject to the inherent risks referred to above. ORION GFS, LLC MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS OR MERCHANTABILITY OR ANY OTHER EXPRESS OR IMPLIED WARRANTY. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, ORION GFS, LLC AND THE SELLER DISCLAIM ANY LIABILITY FOR CONSEQUENTIAL, SPECIAL OR INDIRECT DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT.

ORION GFS, LLC and the SELLER offer this product, and the Buyer and User accept it, subject to the foregoing Conditions of Sale and Warranty which may be varied only by agreement in writing signed by a duly authorized representative of ORION GFS, LLC.

- Liberty, LibertyLink, Rely, Laudis, and the LibertyLink design are registered trademarks of Bayer CropScience.
- Impact is a registered trademark of Amvac Chemical Company.
- Guardsman Max, Poast, Prowl, Pursuit, and Status are registered trademarks and Distinct and Raptor are trademarks of BASF Corporation.
- Firstrate, Surflan, Goal, and Hornet are registered trademarks and Pendimax is a trademark of Dow AgroSciences.
- Assure, Classic, Direx, Harmony, Karmex, Staple, Synchrony, Sinbar, and Vitron are registered trademarks of E. I. DuPont de Nemours Company.
- Aim is a trademark of FMC.
- Cotoran is a registered trademark of Makhteshim Agan North America.
- Permit and Yukon are registered trademarks of Monsanto.
- Camix, Caparol, Dual Magnum, Flexstar, Fusilade, Fusion, Lexar, Lumax, Reflex, Solicam, Princep, and Spirit are registered trademarks and Callisto and NorthStar, are trademarks of Syngenta Group Company.

- Cobra, Resource, Chateau, and Select are registered trademarks and Phoenix and Select Max are trademarks of Valent U.S.A. Company.
- Ultra Blazer is a registered trademark of United Phosphorus, Inc.

# Material Sent for Data Extraction

Reg. # 88685-2

Description: \_\_\_\_\_

☒ Material(s) Sent to Data Extraction Contractors:

☒ New Stamped Label Dated 3/27

☐ Notification Dated \_\_\_\_\_

☐ New CSF(s) Dated \_\_\_\_\_

☐ Other: \_\_\_\_\_

☒ Decision #: 455583

☐ Other Action/Comments: \_\_\_\_\_

File this coversheet and attached materials in the jacket. It must be well organized and clipped together, NOT STAPLED. Then give the jacket with the coversheet and materials to staff in the Information Services Center (ISC) (Room S-4900). If a jacket is full or only available as an image, please file materials in a new jacket and bring it down to the (ISC). For further information please call 703-605-0716.

Reviewer: Tracy T. White

Phone: 703-308-0042 Division: RD

Date: 4/3/12



**U.S. ENVIRONMENTAL PROTECTION  
AGENCY**

**Office of Pesticide Programs  
Registration Division (7505P)  
Ariel Rios Building  
1200 Pennsylvania Ave., NW  
Washington, D.C. 20460**

EPA Reg. Number:

**88685-2**

Date of Issuance:

**MAR 27 2012**

Term of Issuance:

Name of Pesticide Product:

**Glufosinate 280 Herbicide**

**NOTICE OF PESTICIDE:**

☒ Registration

☐ Reregistration

(under FIFRA, as amended)

Name and Address of Registrant (include ZIP Code):

**Orion GFS, LLC  
12230 E. Del Norte  
Yuma, AZ 85367-7355**

**Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.**

On the basis of information furnished by the registrant, the above named pesticide is hereby registered/reregistered under the Federal Insecticide, Fungicide and Rodenticide Act. Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is registered in accordance with FIFRA sec. 3(c)(7)(A) provided that you:  
The basic CSF (dated September 21, 2011) is acceptable. The alternate CSF (dated September 21, 2011) is NOT ACCEPTABLE as the source active ingredient is not registered.

1. Submit and/or cite all data required for registration/reregistration review of your product when the Agency requires all registrants of similar products to submit data.
2. Submit within one year of the date of this registration notice, storage stability (830.6317) and corrosion characteristics (830.6320) studies.
3. Make the following label changes:
  - a. Revise the EPA Registration Number to read, "EPA Reg. No. 88685-2", and include the Establishment Number."

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA sec. 6(e). Your release for shipment of the product constitutes acceptance of these conditions.

A stamped copy of the label is enclosed for your records.

Signature of Approving Official:

**Kathryn V. Montague  
Product Manager 23  
Herbicide Branch  
Registration Division (7505P)**

Date:

**MAR 27 2012**

## GLUFOSINATE 280 Herbicide

A non-selective herbicide for post emergence weed control in apples, berries, grapes and tree nuts. Glufosinate 280 Herbicide may also be applied for potato vine desiccation. Glufosinate 280 Herbicide is also a non-selective herbicide for post emergence broadcast use on canola, field corn, cotton and soybean designated as LibertyLink. Glufosinate 280 Herbicide may also be applied as a broadcast burndown application before planting or prior to emergence of any conventional or transgenic variety of canola, field corn, cotton, soybean or sugar beet.

### ACTIVE INGREDIENT:

Glufosinate-ammonium (CAS No. 77182-82-2)..... 24.5%\*\*

OTHER INGREDIENTS..... 75.5%

TOTAL ..... 100.0%

\*\*Equivalent to 2.34 pounds of active ingredient per U.S. gallon.

## KEEP OUT OF REACH OF CHILDREN WARNING – AVISO

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

FOR ADDITIONAL PRECAUTIONARY STATEMENTS: See Inside Booklet.

For MEDICAL and TRANSPORTATION emergencies call 1-800-334-7577

manufactured for  
Orion GFS, LLC  
12230 E. Del Norte  
Yuma, AZ 85367-7355  
tel. 928-342-3489

EPA Reg. No. 88685-E

EPA Est. No.

Net Contents:

Product of China

APR 27 2012

88685-E

88685-2

### FIRST AID

IF ON SKIN OR CLOTHING:	<ul style="list-style-type: none"> <li>•Take off contaminated clothing.</li> <li>•Wash skin immediately with plenty of soap and water.</li> <li>•Get medical attention.</li> </ul>
IF IN EYES:	<ul style="list-style-type: none"> <li>•Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>•Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>•Get medical attention if irritation develops or persists.</li> </ul>
IF SWALLOWED:	<ul style="list-style-type: none"> <li>•Rinse mouth thoroughly with plenty of water.</li> <li>•Do not induce vomiting.</li> <li>•Get medical attention immediately.</li> </ul>

### HOT LINE NUMBER

Have the product container or label with you when calling a poison control center or doctor, or when going for treatment. Call 1-800-334-7577 for emergency medical treatment information.

### NOTE TO PHYSICIAN

If this product is ingested, endotracheal intubation and gastric lavage should be performed as soon as possible, followed by charcoal and sodium sulfate administration.

**PRECAUTIONARY STATEMENTS**  
**HAZARDS TO HUMANS AND DOMESTIC ANIMALS**  
**WARNING**

May be fatal if absorbed through skin. Causes substantial but temporary eye injury. Harmful if swallowed. Do not get in eyes, on skin, or on clothing. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

**Personal Protective Equipment (PPE)**

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category C on an EPA chemical resistance category selection chart.

**Applicators and other handlers must wear:**

- Coveralls worn over short-sleeved shirt and short pants;
- Chemical-resistant gloves such as barrier laminate, butyl rubber ≥14 mils, nitrile rubber ≥14 mils, neoprene rubber ≥14 mils, polyvinyl chloride (PVC) ≥14 mils, or Viton® ≥14 mils
- Chemical resistant footwear plus socks;
- Protective eyewear (goggles, face shield or safety glasses).
- Wear a chemical resistant apron when mixing/loading and cleaning equipment.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

Mixers/loaders supporting aerial applications must wear a dust/mist filtering respirator (MSHA/NIOSH approval number prefix TC-21C), or a NIOSH approved respirator with any N, R, P or HE filter.

When mixing and loading wear a chemical-resistant apron. For overhead exposure wear chemical-resistant headgear. When cleaning equipment wear a chemical-resistant apron.

**Engineering Control Statement:**

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.



### **USER SAFETY RECOMMENDATIONS**

#### **Users should:**

Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse.

Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

### **ENVIRONMENTAL HAZARDS**

Do not apply directly to water or to areas where surface water is present. Do not apply to intertidal areas below the mean high water mark. Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.

This pesticide is toxic to vascular plants and should be used strictly in accordance with the drift and run-off precautions on this label in order to minimize off-site exposures.

Under some conditions, this product may have a potential to run-off to surface water or adjacent land. Where possible, use methods which reduce soil erosion, such as no till, limited till and contour plowing; these methods also reduce pesticide run-off. Use of vegetation filter strips along rivers, creeks, streams, wetlands, etc. or on the downhill side of fields where run-off could occur to minimize water runoff is recommended.

### **DIRECTIONS FOR USE**

**It is a violation of Federal law to use this product in a manner inconsistent with its labeling.**

Do not use this product until you have read the entire label. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation. In the State of New York Only: Not For Use In Nassau and Suffolk Counties.

### **AGRICULTURAL USE REQUIREMENTS**

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses; and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted-entry intervals. The requirements in this box only apply to uses of this product that are

covered by the Worker Protection Standard. Do not enter or allow worker entry into treated areas during the restricted entry-interval (REI) of 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is: coveralls worn over short-sleeved shirt and short pants; chemical resistant gloves such as barrier laminate, butyl rubber  $\geq 14$  mils, nitrile rubber  $\geq 14$  mils, neoprene rubber  $\geq 14$  mils, polyvinyl chloride (PVC)  $\geq 14$  mils, or Viton®  $\geq 14$  mils; chemical resistant footwear plus socks; protective eyewear (goggles, face shield or safety glasses).

**IMPORTANT CROP SAFETY INFORMATION**  
**READ BEFORE USING THIS PRODUCT**

Glufosinate 280 may be applied as a burndown treatment prior to planting or prior to emergence of any conventional or transgenic variety of canola, corn, cotton, soybean or sugar beet.

**Post emergence row crop applications** of Glufosinate 280 may be made only to crops tolerant to the active ingredient in this product. Orion GFS, LLC does not warrant the use of this product on crops other than those designated as LibertyLink® to safely withstand the application of Glufosinate 280.

The basis of selectivity of Glufosinate 280 in crops is the presence of a gene in LibertyLink crops which results in a plant that is tolerant to the active ingredient of Glufosinate 280. Crops not containing this gene will not be tolerant to Glufosinate 280 and severe crop injury and/or death may occur. Do not allow spray to contact foliage or green tissue of desirable vegetation other than crops tolerant to the active ingredient in this product.

Glufosinate 280 may be applied to conventional or other transgenic cotton not tolerant to the active ingredient in Glufosinate 280 using a hooded sprayer.

**Applications to apples, berries, tree nuts, and vines** should avoid contact of Glufosinate 280 solution, spray, drift or mist with green bark, stems, or foliage, as injury may occur to trees, berries and vines. Only trunks with callused, mature brown bark should be sprayed unless protected from spray contact by nonporous wraps, grow tubes or waxed containers. Contact of Glufosinate 280 with parts of trees, berries or vines other than mature brown bark can result in serious damage.

**INFORMATION**

Glufosinate 280 is a water-soluble herbicide for application as a foliar spray for the control of a broad spectrum of emerged annual and perennial grass and broadleaf weeds in LibertyLink® canola, LibertyLink® corn, LibertyLink® cotton, and LibertyLink® soybean, and in apples, berries, grapes, and tree nuts. Glufosinate 280 may also be applied for potato vine desiccation. Glufosinate® 280 may also be applied as a broadcast burndown application before planting or prior to emergence of any conventional or transgenic variety of canola, corn, cotton, soybean or sugar beet.

Glufosinate 280 is only foliar-active with little or no activity in soil. Weeds that emerge after application will not be controlled. Apply Glufosinate 280 to actively growing weeds as described in the Weed Control for Row Crops section to get maximum weed control. Uniform, thorough spray coverage is necessary to achieve consistent weed control. Necrosis of leaves and young shoots occur within 2 to 4 days after application under good growing conditions.

•Glufosinate 280 is rainfast four (4) hours after application to most weed species; therefore, rainfall within four (4) hours may necessitate retreatment or may result in reduced weed control.

- Applications should be made between dawn and 2 hours before sunset to avoid the possibility of reduced lambsquarters and velvetleaf control.

- Weed control may be reduced if application is made when heavy dew, fog and mist/rain are present; or when weeds are under stress due to environmental conditions such as drought, cool temperatures or extended periods of cloudiness.

- To maximize weed control, do not cultivate from 5 days before an application to 7 days after an application.

### ROTATIONAL CROP RESTRICTIONS\*

Rotational crop planting intervals following application of Glufosinate 280 are listed below. Failure to comply with these restrictions may result in illegal residues in rotated crops.

Rotational Crop	Plant Back Interval (Minimum Rotational Crop Planting Interval from Last Application)
Canola, Field Corn, Cotton, Rice, Soybeans, and Sugar beets	May be planted at any time
Root and Tuber Vegetables, Leafy Vegetables, Brassica Leafy Vegetables and Small Grains (barley, buckwheat, oats, rye, teosinte, triticale, and wheat)	70 Days
All Other Crops	180 Days

\*See Application Directions for Potato Vine Desiccation for Rotational Crop Restrictions specifically after Glufosinate 280 applications to potatoes.

### APPLICATION AND MIXING PROCEDURES

**Ground Application:** Glufosinate 280 should be applied broadcast in a minimum of 15 gallons of water per acre. Under dense weed/crop canopies, 20 to 40 gallons of water per acre should be used so that thorough spray coverage will be obtained. Apply Glufosinate 280 using nozzles and pressures that generate MEDIUM (about 250 to 350 microns) spray droplets category as reported by the nozzle manufacturer and in accordance to ASABE S 572. Do not use nozzles and pressures that result in COARSE sprays. FINE sprays should also be avoided to minimize spray drift risk. Boom height should be based on nozzle manufacturer recommendations. See the **Spray Drift Management** section of this label for additional information on proper application of Glufosinate 280.

**Aerial Application:** Poor coverage will result in reduced weed control. For optimal weed control, apply Glufosinate 280 in a minimum of 10 gallons per acre. Apply Glufosinate 280 using nozzles and pressures that generate MEDIUM (about 300 to 400 microns) spray droplets category as reported by the nozzle manufacturer and in accordance to ASABE S 572 based upon the selected air speed. Do not use nozzles and pressures that result in COARSE sprays. FINE sprays should also be avoided to minimize spray drift risk. See the

Spray Drift Management section of this label for additional information on proper application of Glufosinate 280.

### COMPATIBILITY TESTING

If Glufosinate 280 is to be mixed with pesticide products not listed on this label, test the compatibility of the intended tank mixture prior to mixing the products in the spray tank. The following procedure assumes a spray volume of 25 gallons per acre. For other spray volumes, adjust the amount of the water used accordingly. Check compatibility as follows:

1. Place 1.0 pint of water from the source that will be used to prepare the spray solution in a clear 1-quart jar.
2. For each pound of a dry tank mix partner to be applied per acre, add 1.5 teaspoons to the jar.
3. For each 16 fl oz of a liquid tank mix partner to be applied per acre, add 0.5 teaspoon to the jar.
4. For each 16 fl oz of Glufosinate® 280 to be applied per acre, add 0.5 teaspoon to the jar.
5. After adding all the ingredients, place a lid on the jar and tighten. Invert 10 times to mix.
6. Let the mixture stand for 15 minutes, and evaluate the solution for uniformity and stability. Look for separation, large flakes, precipitates, gels, heavy oily film on the jar, or other signs of incompatibility. If the tank mix partners are not compatible, do not use the mixture in a spray tank.
7. After compatibility testing is complete, dispose of any pesticide wastes in accordance with the Storage and Disposal section of this label.

### MIXING INSTRUCTIONS

**Tank Mix:** Glufosinate 280 may be applied in tank mix combinations with labeled rates of other products provided these other products are labeled for the timing and method of application for the crop to be treated. The tank mix partner must be used in accordance with the label limitations and precautions. No label dosage rates may be exceeded. Glufosinate 280 cannot be mixed with any product containing a label prohibition against such mixing. Refer to the specific crop section for rates and other restrictions.

Glufosinate 280 must be applied with properly calibrated and clean equipment. Glufosinate 280 is formulated to mix readily in water. Prior to adding Glufosinate 280 to the spray tank, ensure that the spray tank is thoroughly clean, particularly if a herbicide with the potential to injure crops was previously used (see Cleaning Instructions).

Mix Glufosinate 280 with water to make a finished spray solution as follows:

1. Fill the spray tank half full with water.
2. Start agitation.

3. If mixing with a flowable/wettable powder tank mix partner. Prepare a slurry of the proper amount of the product in a small amount of water. Add the slurry to the spray tank.
4. Add the appropriate amount of ammonium sulfate (AMS) to the spray tank.
5. If mixing with a liquid tank mix partner, add the liquid mix partner next.
6. Complete filling the spray tank with water.
7. Add the proper amount of Glufosinate 280 and continue agitation.
8. If foaming occurs, use a silicone-based antifoam agent.

Ensure that all spray system lines including pipes, booms, etc. have the correct concentration of spray solution by flushing out the spray system lines before starting the crop application.

If tank mix partners on this label are added, maintain good agitation at all times until contents of the tank are sprayed. If the spray mixture is allowed to settle, thorough agitation is required to resuspend the mixture before spraying is resumed. Keep bypass line on or near bottom of tank to minimize foaming. Screen size in nozzles or line strainers must be 50 mesh or larger.

### **CLEANING INSTRUCTIONS**

Before using Glufosinate 280, thoroughly clean bulk storage tank, refillable tank, nurse tanks, spray tank, lines, and filter, particularly if a herbicide with the potential to injure crops was previously used. Equipment should be thoroughly rinsed using a commercial tank cleaner.

After using Glufosinate 280, triple rinse the spray equipment and clean with a commercial tank cleaner before using for crops not labeled LibertyLink. Make sure any rinsate or foam is thoroughly removed from spray tank and boom. Rinsate may be disposed following the pesticide disposal directions on this label.

### **SPRAY DRIFT MANAGEMENT**

Spray drift may result in injury to non target crops or vegetation. To avoid spray drift, do not apply when wind speed is greater than 10 MPH or during periods of temperature inversions. Do not apply when weather conditions, wind speed, or wind direction may cause spray drift to non-target areas. **AVOIDING SPRAY DRIFT AT THE APPLICATION SITE IS THE RESPONSIBILITY OF THE APPLICATOR.**

- All aerial and ground application equipment must be properly maintained and calibrated using appropriate carriers.
- For all non-aerial applications, wind speed must be measured adjacent to the application site, on the upwind side, immediately prior to application.

**Sensitive Areas:** The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, known habitats for threatened or endangered species, non-target crops) is minimal (e.g., when wind is blowing away from the sensitive areas).

Do not apply under circumstances where possible drift to unprotected persons or to food, forage, or other plantings that might be damaged or crops thereof rendered unfit for sale, use or consumption can occur.

**Aerial Drift Management:** The following drift management requirements must be followed to avoid off-target drift movement from aerial applications to agricultural field crops.

1. The distance of the outer most nozzles on the boom must not exceed 3/4 the length of the wingspan or rotor.
2. Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.

Where states have more stringent regulations, they must be observed. The applicator should be familiar with and take into account the information covered in the Aerial Drift Reduction Advisory Information.

#### **AERIAL DRIFT REDUCTION ADVISORY INFORMATION**

**Information on Droplet Size:** The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions on next page). **AVOIDING SPRAY DRIFT AT THE APPLICATION SITE IS THE RESPONSIBILITY OF THE APPLICATOR.**

#### **Controlling Droplet Size:**

**Volume:** Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.

**Pressure:** Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.

**Number of Nozzles:** Use the minimum number of nozzles that provide uniform coverage.

**Nozzle Orientation:** Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential.

**Nozzle Type:** Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

**Boom Length:** For some use patterns, reducing the effective boom length to less than 3/4 of the wingspan or rotor length may further reduce drift without reducing swath width.

**Application Height:** Applications should not be made at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

**Swath Adjustment:** When applications are made with a crosswind, the swath will be displaced downward. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.)

**Wind:** Drift potential is lowest between wind speeds of 2 -10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Applications should be avoided below 2 miles per hour due to variable wind direction and high inversion potential. **NOTE:** Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

**Temperature and Humidity:** When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry. Avoid spraying during conditions of low humidity and/or high temperatures.

**Temperature Inversions:** Do not make aerial or ground applications into areas of temperature inversions. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

**APPLICATION DIRECTIONS FOR USE ON LISTED TREE, VINE, AND BERRY CROPS**  
Apply Glufosinate 280 to the tree, vine, and berry crops listed below. Uniform, thorough spray coverage is necessary to achieve consistent weed control.

#### **REGISTERED CROPS**

- Tree Nuts: almonds, filberts, hickory nuts, macadamia nuts (bush nuts), pecans, pistachios, and walnuts



- Tree Fruits: apples
- Vineyards: all grape varieties (table, wine, and raisins)
- Bushberries: blueberry, currant, elderberry, gooseberry, and huckleberry
- Other Berries: lingonberry, juneberry, and salal

### APPLICATION RATE AND TIMING

For best results, apply to emerged, young, actively growing weeds. Warm temperatures, high humidity, and bright sunlight improve the performance of Glufosinate 280. Refer to the Weed Control for Row Crops section of this label for selection of the proper rate dependent upon weed species present and size. Weeds under stress or in dense populations will require application at the highest specified label use rate. Stressed conditions also include prior treatments of other contact or systemic herbicides. Do not retreat these weeds with Glufosinate 280 until sufficient regrowth has occurred.

Apply Glufosinate 280 as a directed spray to control undesirable vegetation in tree, vine and berries listed on this label. Apply as a broadcast, banded, or spot treatment application depending on the situation to control weeds listed under the heading "Weeds Controlled in Tree, Vine and Berry crops". Avoid direct spray or drift to desirable vegetation. Regrowth may occur due to the weed stage of growth at application, low use rate, or environmental conditions. Repeat applications of Glufosinate 280 may be necessary to control plants generating from underground parts or seed.

Avoid contact of Glufosinate 280 solution, spray, drift or mist with green bark, stems, or foliage, as injury may occur to trees and vines. **Only trunks with callused, mature brown bark should be sprayed unless protected from spray contact by nonporous wraps, grow tubes or waxed containers. Contact of Glufosinate 280 with parts of trees or vines other than mature brown bark can result in serious damage.**

### Application Methods for Broadcast Applications

Apply Glufosinate 280 at the rates listed below for broadcast applications based on weed size and stage of growth.

Weed Size and Stage	Glufosinate 280 Rate
Weeds < 3" in height	48 fl oz/A
Weeds < 6" in height pre-tiller grasses	56 fl oz/A
Weeds > 6" in height and/or grasses that have tillered	56-82 fl oz/A

### Application Methods for Banded Spray Applications

Banded applications may be used using the following formula to calculate the amount of herbicide needed for orchard or vineyard strip sprays:

$$\frac{\text{Band width in inches}}{\text{Row width in inches}} \times \text{Rate per acre broadcast} = \text{Amount of herbicide needed for treatment}$$

### Application Methods for Spot or Directed-Spray Applications

For spot or directed spray application, mix Glufosinate 280 at 1.7 fl oz of product per gallon of water. Apply to undesirable vegetation foliage until wet but prior to runoff. Ensure uniform and complete coverage. Thoroughly clean the sprayer following use. DO NOT make spot or directed spray applications to tree or vine trunk as injury may occur.

## Weeds Controlled in Tree, Vine and Berry Crops

### Broadleaf Weeds

Alkali sida	Fleabane, annual	Morningglory, entireleaf	Redmaids
Ammannia, purple	Goosefoot	Morningglory, ivyleaf	Shepherd's-Purse
Arrowhead,	Gromwell, field	Morningglory, pitted	Smartweed,
California	Groundcherry,	Mullein, turkey	Pennsylvania
Buckwheat, wild	cutleaf	Mustard, wild	Sowthistle, annual
Buffalobur	Groundsel, common	Nettle	Spurge, prostrate
Burclover, California	Henbit	Nightshade, black	Starthistle, yellow
Carpetweed	Jimsonweed	Nightshade, eastern	Sunflower, common
Chickweed, common	Knotweed	black	Sunflower, prairie
Chinese thornapple	Kochia	Nightshade, hairy	Sunflower, volunteer
Cocklebur, common	Lambsquarters,	Pennycress	Swinecress
Cudweed	common	Pigweed, redroot	Thistle, Russian
Cutleaf	Lettuce, miner's	Pineapple-weed	Turnip, wild
eveningprimrose	Lettuce, prickly	Puncturevine	Velvetleaf
Dodder	London rocket	Purslane, common	Vervain
Eclipta	Mallow, common	Radish, wild	Vetch
Fiddleneck	Malva (little mallow)	Ragweed, common	Virginia copperleaf
Filaree	Marestail	Ragweed, giant	Willowherb, panicle
Filaree, redstem	Mayweed		

### Grass Weeds

Barnyardgrass	Crabgrass, smooth	Junglerice	Shattercane
Bluegrass, annual	Cupgrass, woolly	Oat, wild	Sprangletop
Brome, ripgut	Foxtail, giant	Panicum, fall	Stinkgrass
Bromegrass, downy	Foxtail, green	Panicum, Texas	Wheat, volunteer
Canarygrass	Foxtail, yellow	Rush, toad**	Windgrass
Chess, soft	Goosegrass	Ryegrass, annual	Witchgrass
Crabgrass, large	Johnsongrass, seedling	Sandbur, field	

### Biennial and Perennial Weeds

Aster, white heath	Dallisgrass	Mullein, common	Rocket, yellow
Bindweed, field	Dandelion	Mustard, tansy	Rose, wild
Bindweed, hedge	Dock, curly	Nutsedge, purple	<i>Rubus</i> spp.
Bluegrass, Kentucky	Dogbank (hemp)	Nutsedge, yellow	Spurge, leafy
Bromegrass, smooth	Fescue	Onion, wild	Thistle, bull

Bulrush** Burdock Canada thistle Clover, Alsike Clover, red Clover, white	Goldenrod, gray Guineagrass Horsetail Lovegrass Mugwort	Orchardgrass Paragrass Plantain Poison ivy/oak Quackgrass	Thistle, musk Torpedograss Vaseygrass Woodsorrel Yarrow, common
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\*\*indicates suppression

## RESTRICTIONS TO THE DIRECTIONS FOR USE ON TREE, VINE, AND BERRY CROPS

1. **DO NOT** apply more than 164 fl oz of Glufosinate 280 per acre (3 lbs ai/A) to berry bushes in a 12-month period.
2. **DO NOT** apply more than 246 fl oz of this product per acre to tree nuts, vines, and tree fruits in any calendar year.
3. **DO NOT** graze, harvest, and/or feed treated orchard cover crops to livestock.
4. **DO NOT** apply this product through any type of irrigation system.
5. **DO NOT** apply this product aerially to tree, berry, or vine crops.
6. **DO NOT** apply this product within 14 days of nut, apple, berry or grape harvest.
7. **DO NOT** make spot spray applications to apple suckers, as tree injury may occur.

## TANK MIX PARTNER

Glufosinate 280 does not provide residual weed control or control of unexposed plant parts. Certain herbicide tank mixes may aid in the performance of Glufosinate 280 or be added to provide residual herbicide activity. No additional surfactant is needed with any tank mix partner. Glufosinate 280 may be applied in tank mix combinations with labeled rates of other products provided these other products are labeled for the timing and method of application for the crop to be treated. The tank mix partner must be used in accordance with the label limitations and precautions. No label dosage rates may be exceeded. Glufosinate 280 cannot be mixed with any product containing a label prohibition against such mixing.

Chateau	Karmex® DF	Simazine 80W	Solicam® DF
Devrinol® 50WP	Princep® 4L	Simazine 90	Surflan® A.S.
Goal® 1.6E	Simazine 4L	Sinbar® 80W	

## APPLICATION DIRECTIONS FOR POTATO VINE DESICCATION

### APPLICATION RATE AND TIMING

Apply Glufosinate 280 at the beginning of natural senescence of potato vines. Apply 21 fl oz/A. Do not split this application or apply more than one application per harvest. Potato varieties with heavy or dense vines may require an application of another desiccation product to complete vine desiccation.

Thorough coverage of the potato vines to be desiccated is essential. Use a sufficient volume of water (20 to 100 gpa) to obtain a thorough coverage of the potato vines. Vary the gallons of water per acre and the spray pressure as indicated by the density of the potato vines to assure thorough spray coverage. Increase the spray volume to at least 30 gallons of water per acre when the potato vine canopy is dense or under cool and dry conditions. Apply Glufosinate 280 with the spray boom as low as possible to achieve thorough coverage of the potato vines for best control and to minimize drift potential.

#### RESTRICTIONS TO THE DIRECTIONS FOR USE IN POTATO VINE DESICCATION

1. **DO NOT** apply more than 21 fl oz/A to potato vines per season.
2. **DO NOT** harvest potatoes until 9 days or more after application of Glufosinate® 280.
3. **DO NOT** apply to potatoes grown for seed.
4. Canola, corn, cotton, rice, soybean, and sugar beets may be planted at any time after the application of Glufosinate 280 as a potato vine desiccant.
5. **DO NOT** plant treated areas to wheat, barley, buckwheat, millet, oats, rye, sorghum, and triticale until 30 or more days after an application of Glufosinate® 280 as a potato vine desiccant.
6. **DO NOT** plant treated areas to crops other than those listed in this use precautions section until 120 or more days after an application of Glufosinate® 280 as a potato vine desiccant.

#### WEED CONTROL FOR ROW CROPS

Rates in ounces of formulated product per acre for the control of weeds at selected heights are shown in the weed control tables. In weed populations with mixed species, apply at a rate needed for the species that requires the highest rate.

Broadleaf Weed Control					
Weed Species	Maximum Weed Height or Diameter (Inches)		Weed Species	Maximum Weed Height or Diameter (Inches)	
	22 fl oz/A	29 fl oz/A <sup>ab</sup>		22 fl oz/A	29 fl oz/A <sup>ab</sup>
Amaranth, Palmer <sup>2</sup>	3	4	Morningglory, sharppod <sup>2</sup>	2	4
Anoda, spurred	3	5	Morningglory, smallflower <sup>2</sup>	4	6
Beggarweed, Florida	4	5	Morningglory, tall <sup>2</sup>	6	8
Black medic	5	7	Mustard, wild	4	6
Blueweed, Texas	5	7	Nightshade, black	4	6
Buckwheat, wild	6	7	Nightshade, eastern black	6	8
Buffalobur	6	7	Nightshade, hairy	6	8
Burcucumber	6	10	Pennycress (stinkweed)	4	6
Catchweed bedstraw (cleavers)	2	4	Pigweed, redroot <sup>2</sup>	3	4

Carpetweed	4	6	Pigweed, prostrate <sup>2</sup>	3	4
Chickweed, common	6	8	Pigweed, spiny <sup>2</sup>	3	4
Cocklebur, common	6	14	Pigweed, smooth <sup>2</sup>	3	4
Copperleaf, hophornbeam	4	6	Pigweed, tumble <sup>2</sup>	3	4
Cotton, volunteer	6	8	Puncturevine	4	6
Croton, tropic	3	5	Purslane, common	2	4
Croton, woolly	2	4	Pusley, Florida	S	3
Eclipta	4	6	Ragweed, common	6	10
Devil's claw	2	4	Ragweed, giant	6	12
Fleabane, annual	6	8	Senna coffee	4	6
Galinsoga, hairy	6	8	Sesbania, hemp	6	8
Galinsoga, smallflower	6	7	Shepherd's-purse	6	8
Groundcherry, cutleaf	4	5	Sicklepod (java bean)	4	6
Geranium, cutleaf	4	6	Sida, prickly	4	5
Hempnettle	4	6	Smartweed, Pennsylvania	6	14
Horsenettle, Carolina <sup>3</sup>	2	4	Smellmelon	4	6
Jimsonweed	6	10	Sowthistle, annual	6	8
Knotweed	3	5	Soybeans, volunteer <sup>1</sup>	6	8
Kochia <sup>2</sup>	4	6	Spurge, prostrate	2	4
Ladysthumb	6	14	Spurge, spotted	2	4
Lambsquarters, common <sup>2</sup>	4	6	Starbur, bristly	4	6
Mallow, common	4	6	Sunflower, common	6	14
Mallow, Venice	6	8	Sunflower, prairie	3	5
Marestail <sup>3</sup>	S	6-12	Sunflower, volunteer	6	10
Marshelder, annual	4	6	Thistle, Russian <sup>3</sup>	S	6-12
Morningglory, entireleaf <sup>2</sup>	6	8	Velvetleaf <sup>2</sup>	3	4
Morningglory, ivyleaf <sup>2</sup>	6	8	Waterhemp, common <sup>2</sup>	4	5
Morningglory, pitted <sup>2</sup>	6	8	Waterhemp, tall <sup>2</sup>	4	5

<sup>a</sup>In cotton, Glufosinate 280 may be applied at 29 fl oz/A three times per season.

<sup>b</sup>Do not apply more than 22 fl oz/A of Glufosinate 280 post emergence in a single application to canola and corn.

**S** Indicates suppression

<sup>1</sup>Volunteer LibertyLink crops from the previous season will not be controlled.

<sup>2</sup>For applications to corn, tank mixing with atrazine may enhance weed control of this species.

<sup>3</sup>May require sequential applications for control.

Grass Weed Control					
Weed Species	Maximum Weed Height or Diameter (Inches)		Weed Species	Maximum Weed Height or Diameter (Inches)	
	22 fl	29 fl		22 fl	29 fl

	oz/A	oz/A <sup>ab</sup>		oz/A	oz/A <sup>ab</sup>
Barley, volunteer <sup>3</sup>	3	4	Millet, wild proso	6	7
Barnyardgrass	3	5	Millet, proso volunteer	6	7
Bluegrass, annual	3	5	Oat, wild <sup>2</sup>	3	4
Corn, volunteer <sup>1</sup>	10	12	Panicum, fall	3	5
Crabgrass, large <sup>2</sup>	3	5	Panicum, Texas	4	6
Crabgrass, smooth <sup>2</sup>	3	5	Rice, red	4	6
Cupgrass, woolly	6	12	Rice, volunteer <sup>1</sup>	4	6
Foxtail, bristly	6	8	Sandbur, field <sup>2</sup>	S	2
Foxtail, giant	6	12	Shattercane	6	8
Foxtail, green	6	12	Signalgrass, broadleaf	3	5
Foxtail, robust purple	6	8	Sprangletop	4	6
Foxtail, yellow <sup>2</sup>	3	4	Sorghum, volunteer	6	8
Goosegrass <sup>3</sup>	2	3	Stinkgrass	4	6
Johnsongrass, seedling	3	5	Wheat, volunteer <sup>2</sup>	4	5
Junglerice	3	5	Witchgrass	4	6

<sup>a</sup>In cotton, Glufosinate 280 may be applied at 29 fl oz/A three times per season.

<sup>b</sup>Do not apply more than 22 fl oz/A of Glufosinate 280 post emergence to canola and corn.

S Indicates suppression

<sup>1</sup>Volunteer LibertyLink crops from the previous season will not be controlled. A timely cultivation 7 to 10 days after an application and/or retreatment 10-21 days after the first application for controlling dense clumps of volunteer corn or rice.

<sup>2</sup>For best control of yellow foxtail, field sandbur, crabgrass, and wild oats, treat prior to tiller initiation.

<sup>3</sup>A sequential application may be necessary for control.

Biennial and Perennial Weeds			
For control of the biennial and perennial weeds listed below, apply tank mix partners or sequential applications of Glufosinate 280 (22 fl oz/A followed by 22 fl oz/A).			
Alfalfa	Burdock	Goldenrod, gray*	Orchardgrass
Artichoke, Jerusalem	Bursage, woolyleaf	Johnsongrass, rhizome	Poinsettia, wild
Bermudagrass	Chickweed, mouse-ear	Milkweed, common*	Pokeweed
Bindweed, field	Clover, Alsike	Milkweed, honeyvine*	Quackgrass*
Bindweed, hedge	Clover, red	Muhly, wirestem*	Sowthistle, perennial
Bluegrass, Kentucky	Dandelion	Nightshade, silverleaf	Thistle, bull
Blueweed, Texas	Dock, smooth	Nutsedge, purple*	Thistle, Canada
Bromegrass, smooth	Dogbane, hemp*	Nutsedge, yellow*	Timothy*
			Wormwood, biennial

\*Suppression Only

### APPLICATION DIRECTIONS FOR BURNDOWN USE

Glufosinate 280 may be applied as a burndown treatment prior to planting or prior to emergence of any conventional or transgenic variety of canola, corn, cotton, soybean or sugar beet. Apply a minimum of 29 fl oz/A of Glufosinate 280 for burndown of existing weeds just prior to planting or prior to emergence of canola, corn, cotton, soybean, or sugar beets. For best results, apply to emerged, young, actively growing weeds. Warm temperatures, high humidity, and bright sunlight improve the performance of Glufosinate 280. Refer to the Weed Control for Row Crops section of this label for selection of the proper rate dependent upon weed species present and size.

- In cotton, if environmental conditions prevent timely applications, a single application may be made of up to 43 fl oz/A of Glufosinate 280. If more than 29 fl oz/A are used in any single application, the season total may not exceed 72 fl oz/A, including all application timings.
- In canola, corn, soybean, and sugar beets, if environmental conditions prevent timely applications, a single application may be made of up to 36 fl oz/A of Glufosinate 280. No additional applications of Glufosinate 280 may be made post emergence to the crop during the growing season.

	Burndown	In-Season Applications	Season Max
Cotton Use Pattern 1	29 fl oz/A	2 applications at 22-29 fl oz/A	87 fl oz/A
Cotton Use Pattern 2	30-43 fl oz/A	1 application at 22-29 fl oz/A	72 fl oz/A
Canola, Corn, Soybean, Sugar beets	29-36 fl oz/A	None	36 fl oz/A

### APPLICATION DIRECTIONS FOR USE ON CANOLA

Apply Glufosinate 280 only to canola labeled as LibertyLink. Uniform, thorough spray coverage is necessary to achieve consistent weed control.

### APPLICATION RATE AND TIMING

For best results, apply to emerged, young, actively growing weeds. Warm temperatures, high humidity, and bright sunlight improve the performance of Glufosinate 280. Refer to the Weed Control for Row Crops section of this label for selection of the proper rate dependent upon weed species present and size. For optimal yield, early season weed removal is important.

Applications of Glufosinate 280 on canola may be made from the cotyledon stage up to the early bolting stage of the canola. Slight discoloration of the canola may be visible after application. This effect is temporary and will not influence crop growth, maturity or yield.

Apply Glufosinate 280 at 22 fl oz/A per application. A second application of Glufosinate® 280 may be needed to control weeds that have not yet emerged at the time of application.

#### **RESTRICTIONS TO THE DIRECTIONS FOR USE ON CANOLA**

- **DO NOT** use on canola in the states of Alabama, Delaware, Georgia, Kentucky, Maryland, New Jersey, North Carolina, South Carolina, Tennessee, Virginia and West Virginia.
- **DO NOT** apply more than two applications of Glufosinate 280 per growing season. Sequential applications must be at least 10-14 days apart.
- **DO NOT** apply Glufosinate 280 within 65 days of harvesting canola.
- **DO NOT** apply more than 44 fl oz/A of Glufosinate® 280 per growing season.
- If Glufosinate 280 was used in a burndown application, no post emergence applications may be applied to the crop.
- **DO NOT** graze the treated crop or cut for hay.
- **DO NOT** apply Glufosinate 280 if canola shows injury from prior herbicide applications or environmental stress (drought, excessive rainfall, etc.).
- **DO NOT** apply this product through any type of irrigation system.
- Refer to the "Rotational Crop Restrictions" section under the "Information" heading of this label for the appropriate rotational crop plant back intervals.

#### **SPRAY ADDITIVES**

Glufosinate 280 must be applied with ammonium sulfate (AMS). Use only fine feed grade or spray grade AMS at 3 pounds per acre. Anti-foams or drift control agents may be added if needed. Use of additional surfactants or crop oils may increase risk of crop response.

#### **CANOLA TANK MIX**

Glufosinate 280 at 22 fl oz/A plus AMS may be used in tank-mix combination with certain herbicides for improved control of larger than labeled grasses. Glufosinate 280 may be applied in tank mix combinations with labeled rates of other products provided these other products are labeled for the timing and method of application for the canola to be treated. The tank mix partner must be used in accordance with the label limitations and precautions. No label dosage rates may be exceeded. Glufosinate 280 cannot be mixed with any product containing a label prohibition against such mixing. The AMS rate may be reduced to 1.5 lb/A when Glufosinate® 280 is tank mixed with a reduced rate of one of the grass herbicides specified below.

<b>Tank Mix Partner</b>	<b>Rate (fl oz/A)</b>
Assure® II	4 -5 fl oz/A
Poast®	6 -8 fl oz/A
Select® 2EC	2 -3 fl oz/A
Select Max™	4 -6 fl oz/A

#### **APPLICATION DIRECTIONS FOR USE ON FIELD CORN AND SILAGE CORN**

Apply Glufosinate 280 only to corn labeled as LibertyLink. Uniform, thorough spray coverage is necessary to achieve consistent weed control.



## **APPLICATION RATE AND TIMING**

For best results, apply to emerged, young, actively growing weeds. Warm temperatures, high humidity, and bright sunlight improve the performance of Glufosinate 280. Refer to the Weed Control for Row Crops section of this label for selection of the proper rate dependent upon weed species present and size. For optimal yield, early season weed removal is important.

Applications of Glufosinate 280 on corn may be made with over-the-top broadcast or drop nozzles from emergence until corn is 24 inches tall or in the V-7 stage of growth, i.e., 7 developed collars, whichever comes first. For corn 24 inches to 36 inches tall, only apply Glufosinate 280 using ground application and drop nozzles and avoid spraying into the whorl or leaf axils of the corn stalks. Applications of Glufosinate 280 following the use of soil-applied insecticides will not injure corn.

Apply Glufosinate 280 at 22 fl oz/A per application. A second application of Glufosinate 280 or a tank mix application with a residual herbicide will be needed to control weeds that have not yet emerged at the time of application.

## **RESTRICTIONS TO THE DIRECTIONS FOR USE ON FIELD CORN AND SILAGE CORN**

- **DO NOT** apply Glufosinate 280 within 60 days of harvesting corn forage and within 70 days of harvesting corn grain and corn fodder.
- **DO NOT** apply more than two applications of Glufosinate 280 to the corn crop. Sequential applications must be at least 10-14 days apart.
- **DO NOT** apply more than 44 fl oz/A of Glufosinate 280 on corn per growing season.
- If Glufosinate 280 was used in a burndown application, no post emergence applications may be applied to the crop.
- **DO NOT** use nitrogen solutions as spray carriers. A silicone-based antifoam agent may be added if needed.
- **DO NOT** apply Glufosinate 280 if corn shows injury from prior herbicide applications or environmental stress (drought, excessive rainfall, etc.).
- **DO NOT** apply this product through any type of irrigation system.
- Refer to the "Rotational Crop Restrictions" section under the "Information" heading of this label for the appropriate rotational crop plant back intervals.

## **SPRAY ADDITIVES**

For corn, Glufosinate 280 must be applied with ammonium sulfate (AMS). Use only fine feed grade or spray grade AMS at 3 lbs per acre (17 lbs/100 gallons). When temperatures exceed 85° F, the rate of AMS can be reduced to 1.5 lbs per acre (8.5 lbs/100 gallons) to reduce potential leaf burn.

Use of additional surfactants or crop oils may increase risk of crop response.

## **CORN TANK MIX**

Certain herbicide tank mixes may aid in the performance of Glufosinate 280. No additional surfactant is needed with any tank mix partner. Glufosinate 280 may be applied in tank mix combinations with labeled rates of other products provided these other products are labeled for the timing and method of application for the corn to be treated. The tank mix partner must be used in accordance with the label limitations and precautions. No label dosage rates may be exceeded. Glufosinate 280 cannot be mixed with any product containing a label prohibition against such mixing.

#### **Corn Herbicide Tank Mix Partners**

2,4-D	Camix®*	Laudis®	NorthStar™	Spirit®
acetochlor	Distinct™	Lexar®*	pendimethalin**	Status®
Aim™*	Guardsman Max®	Lumax®*	Permit®	Yukon®
atrazine	Hornet® WDG	metolachlor*	Python® WDG	
Callisto™	Impact®	nicosulfuron	s-metolachlor*	

\*These products are tank mixed at 1/2 the use rate with Glufosinate 280 to reduce risk of crop response.

\*\*Tank mixing with pendimethalin may result in reduced control of barnyardgrass, fall panicum, field sandbur, yellow foxtail, and volunteer corn.

#### **APPLICATION DIRECTIONS FOR USE ON COTTON**

Uniform, thorough spray coverage is necessary to achieve consistent weed control. Glufosinate 280 may be applied as a broadcast, over-the-top, post-emergence spray or as a directed spray only to LibertyLink cotton. This product may be applied post-emergence to non-LibertyLink cotton varieties or cultivars by using equipment designed to minimize contact of the spray with the cotton foliage. See the Application Methods on Non-LibertyLink Cotton section for selection of shielding equipment. Severe injury or death may result if the Glufosinate 280 contacts the foliage or stems of cotton NOT labeled as LibertyLink.

#### **APPLICATION RATE AND TIMING**

For best results, apply to emerged, young, actively growing weeds. Warm temperatures, high humidity, and bright sunlight improve the performance of Glufosinate 280. Refer to the Weed Control for Row Crops section of this label for selection of the proper rate dependent upon weed species present and size. For optimal yield, early season weed removal is important.

Apply Glufosinate 280 to cotton from emergence up to the early bloom stage at 22 to 29 fl oz/A. Should environmental conditions prevent a timely herbicide application, a single application of up to 43 fl oz/A of Glufosinate 280 may be made to cotton. If more than 29 fl oz/A are used in any single application, the seasonal total may not exceed 72 fl oz/A, including all application timings. See Restrictions to the Directions for use on Cotton below for additional information.

Refer to the Weed Control for Row Crops section of this label for selection of the proper rate dependent upon weed species present and size. In weed populations with mixed

species, select the highest rate required to control all the species. Volunteer LibertyLink crop plants (corn, rice, cotton, soybeans, sugar beets) from the previous season will not be controlled by applications of Glufosinate 280. A repeat application of Glufosinate 280 or tank mixes with a residual herbicide will be needed to control weeds that have not emerged at the time of application. See the Tank Mix section for Use on Cotton of this label to select suitable tank mix partners.

Use Pattern	1st Application	2nd Application	3rd Application	Season Maximum
Option 1	22-29 fl oz/A	22-29 fl oz/A	22-29 fl oz/A	87 fl oz/A
Option 2	30-43 fl oz/A	22-29 fl oz/A	None	72 fl oz/A

#### RESTRICTIONS TO THE DIRECTIONS FOR USE ON COTTON

- **DO NOT** apply Glufosinate 280 to cotton in Florida, South of Tampa (Florida Route 60), or in Hawaii, except for test plots or breeding nurseries.
- **DO NOT** apply Glufosinate 280 within 70 days prior to cotton harvest.
- Up to three applications of Glufosinate 280 may be made to cotton per season at a maximum application rate of 29 fl oz/A.
- **DO NOT** apply more than 87 fl oz (including all application timings) to cotton per season under this application scenario. Sequential applications must be at least 10-14 days apart.
- If environmental conditions prevent timely applications resulting in large weeds or heavy infestations, a single application of Glufosinate 280 at up to 43 fl oz/A may be made to cotton. **DO NOT** apply more than 43 fl oz of Glufosinate 280 in a single application under this use scenario. If a single application greater than 29 fl oz is made, a subsequent application not to exceed 29 fl oz may be made to cotton. The seasonal total use rate under this scenario may not exceed 72 fl oz of Glufosinate 280. Sequential applications should be at least 10-14 days apart.
- **DO NOT** apply this product through any type of irrigation system.
- Refer to the "Rotational Crop Restrictions" section under the "Information" heading of this label for the appropriate rotational crop plant back intervals.

#### APPLICATION METHODS TO LIBERTYLINK COTTON

Refer to the Weed Control for Row Crops to select the proper application rate based upon the weeds present and their size. Uniform and thorough spray coverage is required to achieve consistent weed control.

For ground application, apply Glufosinate 280 to LibertyLink cotton as an over-the-top foliar spray or as a spray directed to the lower one-third of the cotton stand.

#### APPLICATION METHODS TO NON-LIBERTYLINK COTTON

Application of Glufosinate 280 to cotton varieties not labeled as LibertyLink requires the use of hooded spray equipment designed to minimize exposure of the spray to the cotton stand. A hooded sprayer directs the spray onto weeds, while shielding the cotton stand from contact. Use nozzles that provide uniform coverage within the treated area. Keep

hoods on these sprayers adjusted to protect desirable vegetation. Extreme care must be exercised to avoid exposure of the desirable vegetation to the spray.

With a hooded sprayer, the spray pattern is completely enclosed on the top and all 4 sides by a hood, thereby shielding the crop from the spray solution. This equipment must be set up and operated in a manner that avoids bouncing or raising the hoods off the ground in any way. The spray hoods must be operated on the ground or skimming across the ground. Tractor speed must be adjusted to avoid bouncing of the spray hoods. Avoid operation on rough or sloping ground where the spray hoods might be raised off the ground. If the hoods are raised, spray particles may escape and come into contact with the cotton, causing damage or destruction of the crop.

Herbicide rates and spray volumes are presented as broadcast equivalents and must be reduced in proportion to the area actually treated. Use the following formulas to calculate the correct rate and volume per planted (field) acre:

$\frac{\text{Band width in inches}}{\text{Row width in inches}}$	$\times \text{Broadcast RATE}$ per acre	$= \text{Amount of banded product}$ needed per acre
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$\frac{\text{Band width in inches}}{\text{Row width in inches}}$	$\times \text{Broadcast VOLUME}$ per acre	$= \text{Amount of banded product}$ needed per acre
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### POST-HARVEST

Glufosinate 280 may be applied as a post-harvest burndown treatment to fields (after cotton harvest). Up to 43 fl oz/A of Glufosinate 280 may be applied in a single application to control larger weeds growing in the crop at the time of harvest.

If more than 29 fl oz/A is used in a single application, the seasonal total may not exceed 72 fl oz/A, including all application timings. Refer to the Rotational Crop Restrictions section of this label for appropriate rotational crop information.

### COTTON TANK MIXTURES

Certain tank mixes may aid in the performance of Glufosinate 280. No additional surfactant is needed with any tank mix partner. Glufosinate 280 may be applied in tank mix combinations with labeled rates of other products provided these other products are labeled for the timing and method of application for the cotton to be treated. The tank mix partner must be used in accordance with the label limitations and precautions. No label dosage rates may be exceeded. Glufosinate 280 cannot be mixed with any product containing a label prohibition against such mixing.

**LibertyLink Cotton:** For cotton tolerant to Glufosinate 280, Dual Magnum® or Staple® Herbicide may be tank-mixed with Glufosinate 280 and applied over-the-top post-emergence to enhance weed control and/or provide residual control.

**All Cotton Types:** The following herbicides may be mixed with Glufosinate 280 for hooded-spray application to enhance weed control and/or provide residual weed control:

Aim™	Cotoran® DF	Dual Magnum®	Pendimax™ 3.3	Staple®
Caparol® 4L	Direx® 4L	Glyphosate	Prowl® 3.3EC	
Cotoran® 4L	Direx® 80DF	Karmex® DF	Select Max™	

#### **APPLICATION DIRECTIONS FOR IN-SEASON USE ON SOYBEANS**

Apply Glufosinate 280 only to soybeans designated as LibertyLink. Uniform, thorough spray coverage is necessary to achieve consistent weed control.

#### **APPLICATION RATE AND TIMING**

For best results, apply to emerged, young, actively growing weeds. Warm temperatures, high humidity, and bright sunlight improve the performance of Glufosinate 280. Refer to the Weed Control for Row Crops section of this label for selection of the proper rate dependent upon weed species present and size. Adding ammonium sulfate with Glufosinate 280 may improve weed control if weeds are under stress. For optimal yield, early season weed removal is important.

Applications of Glufosinate 280 on soybeans may be made from emergence up to but not including the bloom growth stage.

Apply Glufosinate 280 at 22 – 29 fl oz/A per application. See weed chart to determine rate. Should environmental conditions prevent a timely herbicide application, a single application of up to 36 fl oz/A may be made to soybeans followed by one additional application at a maximum of 29 fl oz/A with a seasonal maximum of 65 fl oz/A. Glufosinate 280 may be applied alone or in a tank mix application with a residual herbicide to control weeds that have not yet emerged at the time of application.

Although timely post applications of Glufosinate 280 can provide complete weed control, residual herbicides at burndown, planting or tank mixed with Glufosinate 280 help ensure optimal weed management, particularly if environmental conditions delay timely post applications. Residual herbicides can also reduce early season weed competition and are a key element of good weed resistance management practices.

Use Pattern Rate Ranges		
1st Application	2nd Application	Season Maximum
22 – 36 fl oz/A	22 – 29 fl oz/A	65 fl oz/A

#### **APPLICATION DIRECTIONS FOR BURNDOWN USE ON SOYBEANS**

Glufosinate 280 may be applied as a burndown treatment prior to planting or prior to emergence of any conventional or transgenic variety of soybean. Apply a minimum of 29 fl oz/A for burndown of existing weeds just prior to planting or prior to emergence of soybean. For best results, apply to emerged, young, actively growing weeds. Warm Temperatures, high humidity and bright sunshine improve the performance of Glufosinate

280. Refer to the Weed Control for Row Crops section of this label for selection of the proper rate dependent upon weed species present and size.

In soybeans, if environmental conditions prevent timely applications, a single application may be made up to 36 fl oz/A of Glufosinate 280. If 29 – 36 fl oz/A are used in a single burndown application, one additional in-season application may be made at up to 29 fl oz/A. The season total may not exceed 65 fl oz/A, including all application timings.

Soybean Use Patterns	Burndown	In-Season Applications	Season Maximum
	29 – 36 fl oz/A	1 application at 22 – 29 fl oz/A	65 fl oz/A

#### RESTRICTIONS TO THE DIRECTIONS FOR USE ON SOYBEANS

- **DO NOT** apply more than two applications of Glufosinate 280 to the soybean crop. Sequential applications must be at least 10-14 days apart.
- **DO NOT** apply Glufosinate 280 within 70 days of harvesting soybean seed.
- **DO NOT** apply more than 65 fl oz/A of Glufosinate 280 on soybeans per growing season.
- **DO NOT** apply more than 36 fl oz/A of Glufosinate 280 in a single application per growing season to soybeans beyond the V3-V4 vegetative growth stage.
- **DO NOT** graze the treated crop or cut for hay.
- **DO NOT** use nitrogen solutions as spray carriers. A silicone-based antifoam agent may be added if needed.
- **DO NOT** apply Glufosinate 280 if soybeans show injury from prior herbicide applications or environmental stress (drought, excessive rainfall, etc.).
- **DO NOT** apply this product through any type of irrigation system.
- Refer to the "Rotational Crop Restrictions" section under the "Information" heading of this label for the appropriate rotational crop plant back intervals.

#### SOYBEAN TANK MIX

Certain herbicide tank mixes may aid in the performance of Glufosinate 280. No additional surfactant is needed with any tank mix partner. Glufosinate 280 may be applied in tank mix combinations with labeled rates of other products provided these other products are labeled for the timing and method of application for the soybean to be treated. The tank mix partner must be used in accordance with the label limitations and precautions. No label dosage rates may be exceeded. Glufosinate 280 cannot be mixed with any product containing a label prohibition against such mixing.

#### Soybean Herbicide Tank Mix Partners

Assure® II	Fomesafen 1.88	Poast® Plus	Select Max®
Classic®	Fusilade® DX	Pursuit®	Synchrony® XP
clethodim	Fusion®	Raptor™	Ultra Blazer®
Cobra®	Harmony®	Fomesafen 2SL	
Dual Magnum		Prefix	
Firstrate®	Phoenix™	Resource®	

## APPLICATION DIRECTIONS FOR CORN, COTTON, AND SOYBEAN SEED PROPAGATION

Glufosinate 280 may be applied to select out susceptible "segregates", i.e., corn, cotton, and soybean plants that are not tolerant to glufosinate-ammonium during seed propagation.

- **Corn:** Inbred lines, plants not possessing glufosinate-ammonium tolerance, will be severely injured or killed if treated with this herbicide. A hooded sprayer may be used to protect plants from coming into contact with the herbicide application. For the selection of tolerant corn "segregates", Glufosinate 280 may be applied at 22 fl oz/A plus AMS at 3 lb/A (17 lb/100 gallons) when corn is in the V-3 to V-4 stage of growth, i.e., 3 to 4 developed collars. A second treatment of 22 fl oz/A plus AMS at 3 lbs/A may be applied when the corn is in the V-6 to V-7 stage of growth or up to 24" tall. Sequential applications should be at least 10-14 days apart. When temperatures exceed 85° F, the rate of AMS can be reduced to 1.5 lbs/A (8.5 lbs/100 gallons) to reduce potential leaf burn.
- **Cotton:** Glufosinate 280 may also be used in cotton seed propagation as a foliar spray to selectively eliminate cotton plants that do not carry a gene that imparts tolerance to glufosinate-ammonium and as such, can be applied to remove susceptible segregates during cotton seed propagation. Breeding material not possessing the glufosinate-ammonium tolerance gene will be severely injured or killed if treated with this herbicide. See "Application Use Directions for Use on Cotton" for use rates and application timing.
- **Soybeans:** For the selection of tolerant soybean "segregates", Glufosinate 280 may be applied at up to 22 fl oz/A when soybean is in the third trifoliate stage. A second treatment of 22 fl oz/A may be applied up to but not including the bloom growth stage of soybean. Sequential applications should be at least 10-14 days apart.

## FALLOW FIELDS

Glufosinate 280 may be used as a substitute for tillage in fallow fields to control or suppress weeds listed in the "Weed Control for Row Crops" section of this label.

Apply Glufosinate 280 at 22 or 29 fl oz/A to fallow fields to control specific weeds. Glufosinate 280 must be applied with ammonium sulfate. Tank mixes with 2,4-D, glyphosate or atrazine are recommended with Glufosinate 280 to enhance total weed control. When using Glufosinate® 280 in tank mix combinations, follow the precautions and directions of use of the most restrictive label. See the Application and Mixing Procedures section of this label for additional information on how to apply this product. See the Information section of this label for rotational crop restrictions.

## FARMSTEADS

When applied as recommended, Glufosinate 280 controls undesirable plant vegetation in non-crop areas around farmstead building foundations, shelter belts, along fences, and general nonselective farmstead weed control. Refer to the "Application Directions for Use on Listed Tree, Vine, and Berry Crops" section of this label for appropriate application broadcast and spot spray application rates and lists of weeds controlled.

#### **STORAGE AND DISPOSAL**

Do not contaminate water, food, or feed by storage or disposal.

**PESTICIDE STORAGE:** Do not use or store near heat or open flame. Keep the container tightly closed and dry in a cool, well-ventilated place. Storage temperature should not exceed 125° F. If storage temperature for bulk Glufosinate 280 is below 32° F, the material should not be pumped until its temperature exceeds 32° F. Protect against direct sunlight.

**PESTICIDE DISPOSAL:** Wastes resulting from the use of this product may be disposed of on-site or at an approved waste disposal facility.

#### **CONTAINER HANDLING:**

**[Rigid, Non-refillable containers small enough to shake (i.e., with capacities equal to or less than 5 gallons)]**

Non-refillable container. Do not reuse or refill this container. Offer for recycling, if available. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Once container is rinsed, then offer for recycling or reconditioning; or puncture and dispose of in a sanitary landfill, or by incineration; or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

**[All refillable container types (containers with capacities greater than 50 lbs)]**

Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning before refilling is the responsibility of the refiller. This is a sealed returnable container to be used only for Glufosinate 280. When this container is empty, it must not be opened, cleaned, or discarded. Empty containers must be returned to the original purchase location.

**[Bottom discharge Intermediate Bulk Container (IBC) (containers with capacities greater than 50 lbs)]**

Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning before refilling is the responsibility of the refiller. Pressure rinsing the container before final disposal is the responsibility of the person disposing of the container. Empty the remaining contents from the Intermediate Bulk Container (IBC) into application equipment or mix tank. Raise the bottom of the IBC by 1.5 inch on the side



which is opposite of the bottom discharge valve to promote more complete product removal. Completely remove the top lid of the IBC. Use water pressurized to at least 40 PSI to rinse all interior portions. Continuously pump or drain rinsate into application equipment or rinsate collection system while pressure rinsing. Continue pressure rinsing for 2 minutes or until rinsate becomes clear. Replace the lid and close bottom valve. Contact your Ag retailer or Orion GFS for container return, disposal and recycling recommendations.

### **CONDITIONS OF SALE AND LIMITED WARRANTY**

The Directions for Use are believed to be reliable and must be followed carefully. However, it is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials or use of the product in a manner inconsistent with its labeling, all of which are beyond the control of Orion GFS, LLC or the SELLER. To the extent consistent with applicable law, all such risks shall be assumed by the buyer.

Orion GFS, LLC warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes referred to in the Directions for Use, subject to the inherent risks referred to above. ORION GFS, LLC MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS OR MERCHANTABILITY OR ANY OTHER EXPRESS OR IMPLIED WARRANTY. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, ORION GFS, LLC AND THE SELLER DISCLAIM ANY LIABILITY FOR CONSEQUENTIAL, SPECIAL OR INDIRECT DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT.

ORION GFS, LLC and the SELLER offer this product, and the Buyer and User accept it, subject to the foregoing Conditions of Sale and Warranty which may be varied only by agreement in writing signed by a duly authorized representative of ORION GFS, LLC.

- Liberty, LibertyLink, Rely, Laudis, and the LibertyLink design are registered trademarks of Bayer CropScience.
- Impact is a registered trademark of Amvac Chemical Company.
- Guardsman Max, Poast, Prowl, Pursuit, and Status are registered trademarks and Distinct and Raptor are trademarks of BASF Corporation.
- Firstrate, Surflan, Goal, and Hornet are registered trademarks and Pendimax is a trademark of Dow AgroSciences.
- Assure, Classic, Direx, Harmony, Karmex, Staple, Synchrony, Sinbar, and Vitron are registered trademarks of E. I. DuPont de Nemours Company.
- Aim is a trademark of FMC.
- Cotoran is a registered trademark of Makhteshim Agan North America.
- Permit and Yukon are registered trademarks of Monsanto.
- Camix, Caparol, Dual Magnum, Flexstar, Fusilade, Fusion, Lexar, Lumax, Reflex, Solicam, Princep, and Spirit are registered trademarks and Callisto and NorthStar, are trademarks of Syngenta Group Company.

- Cobra, Resource, Chateau, and Select are registered trademarks and Phoenix and Select Max are trademarks of Valent U.S.A. Company.
- Ultra Blazer is a registered trademark of United Phosphorus, Inc.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

OFFICE OF CHEMICAL SAFETY  
AND POLLUTION PREVENTION

OFFICE OF PESTICIDE PROGRAMS  
REGISTRATION DIVISION (7505P)

DP BAR CODE NO.: 399600  
PC Code(s): 128850  
FOOD Use: Yes

FILE SYMBOL NO.: 88685-E DECISION NO.: 455583  
ACTION CODE: R301  
NON-FOOD Use: Yes

DATE OUT: March 8, 2012

SUBJECT: End Use Product Chemistry Review  
Product Name: Glufosinate 280 Herbicide

FROM: Hari Mukhoty  
Product Chemistry Team  
Technical Review Branch / Registration Division (7505P)

TO: Tracy White / Kathryn Montague RM - 23  
Herbicide Branch / Registration Division (7505P)

Company Name: Orion GFS, LLC  
Formulation Type: SL (soluble concentrate)

**INTRODUCTION:**

The Registrant has re-submitted one basic CSF (dated: 09/21/2011), one amended CSF (dated: 09/21/2011) as alternate formulation (Alt. # 1) to the aforesaid basic and has proposed a product specific label for registration of the aforesaid products under EPA File Symbol No. 88685-E. The product chemistry Group A data have been submitted under MRID: 486103-01. The Group B data have been Self-Certified under MRID: 487496-01.

TRB has been requested to evaluate the product chemistry data required for the registration of the proposed products.

**SUMMARY OF FINDINGS:**

1. Name of Active Ingredient(s): Glufosinate-ammonium (24.5%).
2. Has the registrant claimed substantial similarity to registered product?  
[ X ] Yes [ ] No [ ] NA If yes: EPA Reg. No. 264-829
3. The source material(s) of the active ingredient(s) is/are registered with the Agency. The source material of the active ingredient of the alternate formulation (# 1) is not registered with the Agency and is currently undergoing through the process of registration.
4. All inert ingredients have been screened by IIAB on 10/06/2011 and were approved for food uses (Pre-Harvest Application to growing crops).
5. The CSFs of the proposed basic and alternate formulations have been filled out completely and correctly.

DP BAR CODE NO.: 395119  
PC Code(s): 128850  
FOOD Use: Yes

FILE SYMBOL NO.: 88685-E DECISION NO.: 455583  
ACTION CODE: R301  
NON-FOOD Use: Yes

6. Confidential Statement of Formula(s):

☒ Basic - Dated: 09/21/2011 re-submitted – Dated: 09/21/2011  
☒ Alternate- # 1 Dated: 09/21/2011 re-submitted: Dated: 09/21/2011

Alternate CSF(s) complies with 40CFR §152.43: ☒ Yes ☐ No NA ☐.

7. Product label

a. Ingredient statement: Nominal concentration of AI listed on CSF(s) concur with product label (PR Notice 91-2)  
☒ Yes

Is the sub statement in compliance with PR Notice 97-6?

☐ Yes ☒ No - Uses the term "Other Ingredients"  
, if not, explain below: Uses the term "Inert Ingredients"

Metallic equivalent: ☐ Yes ☒ NA;  
Soluble arsenic: ☐ Yes ☒ NA  
Isomeric ratios: ☐ Yes ☒ NA  
Acid equivalent: ☐ Yes ☒ NA

b. Health related sub statements:

Petroleum distillate at > 10%: ☐ Yes ☐ No ☒ NA  
Methanol at > 4%: ☐ Yes ☐ No ☒ NA  
Sodium Nitrate / Sodium Nitrite ☐ Yes ☐ No ☒ NA

c. Physical chemical hazard statement: Product label has a statement per 40 CFR §156.78 for: flammability, explosive potential or electric insulator breakdown?

☐ Yes ☒ No

Total Release Fogger PR Notice 98-6 (40 CFR 156.78 d): ☐ Yes ☐ No ☒ NA

d. Label requires an additional Storage and Disposal statement: ☐ Yes ☒ No – from product chemistry point of view; if yes explain below:

Final decision of overall label acceptance will be made by the PM.

DP BAR CODE NO.: 395119  
PC Code(s): 128850  
FOOD Use: Yes

FILE SYMBOL NO.: 88685-E DECISION NO.: 455583  
ACTION CODE: R301  
NON-FOOD Use: Yes

8. Group A: Product Chemistry Data

TRB's determination of the acceptability of the data for the proposed product is listed in the tables below.

Guideline No.	Study Title		Data submitted		TRB's Assessment of Data	MRID Nos. 486103-01 / Also Cited 462904-01
			Yes	No		
830.1550	Product Identity & Composition		X		A	"
830.1600	Description of materials used to produce the product		X		A	
830.1650	Description of formulation process		X		A	
830.1670	Discussion on the formation of impurities		X		A	
830.1700	Preliminary analysis			X	NA	"
830.1750	Certified limits (158.350)	Standard certified Limits	X		A	
		Justification for wider limits				
830.1800	Enforcement analytical method #		X		A	Cited from EPA Reg. No. 264-829, MRID: 462904-01 (see Data Matrix)

A = Acceptance, NA = Not Acceptable, G = Data Gap,  
W = Waiver Request, I = In Progress, NA = Not Applicable  
# Analytical Method: HPLC method was used utilizing UV detector set at 193 nm

DP BAR CODE NO.: 395119  
PC Code(s): 128850  
FOOD Use: Yes

FILE SYMBOL NO.: 88685-E DECISION NO.: 455583  
ACTION CODE: R301  
NON-FOOD Use: Yes

9. Group B: (see notes below)

Guideline No.	Study Title	Value or Qualitative Description	TRB's Assessment of Data	MRID Nos. 487496-01 Self-Certified
830.6303	Physical State	Liquid	A	"
830.6315	Flammability	Not Flammable	A	"
830.6316	Explosibility	Not potentially explosive	A	"
830.7000	pH	6.95	A	"
830.7300	Density (Sp. Gravity)	1.120	A	"

A = Acceptance, N = Not Acceptable, G = Data Gap, W = Waiver request,  
NA = Not applicable, I = In progress

#### CONCLUSIONS:

1. TRB has reviewed the CSFs (dated: 09/21/2011) for the proposed basic and alternate formulation (Alt. # 1) and has found the basic CSF to be acceptable. The acceptability of the alternate formulation can be determined pending the acceptance for registration of the source material of the active ingredient. The CSFs are attached with this review and can be located in OPPIN CHEM DOCS.
2. The basic formulation is substantial similar to the cited product. Substantial similarity between the proposed alternate # 1 and the cited product (EPA Reg. No. 264-829) can be determined only when the source of the active ingredient of alt # 1 becomes a registered product.
3. Product chemistry Group A and Group B data, with the exception of, one year storage stability (830.6317), and corrosion characteristics (830.6320) are satisfied and acceptable.
4. The registrant must generate one year storage stability (830.6317) and corrosion characteristics (830.6320) data on the proposed product. It is required that the observations be made at 0, 3, 6, 9, and 12 month intervals. The results must be submitted to the Agency in electronic and hard copy format.
5. The proposed label was screened as it pertains to the product chemistry requirements. The final review of the proposed label and uses are the purview of the PM team.



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
WASHINGTON, D.C. 20460

February 29, 2012

OFFICE OF CHEMICAL SAFETY  
AND POLLUTION PREVENTION

SOURCE DYNAMICS LLC  
ORION GFS, LLC  
12230 E DEL NORTE  
YUMA, AZ 85377-7355

Report of Analysis for Compliance with PR Notice 11-03

Thank you for your submittal of 22-FEB-12. Our staff has completed a preliminary analysis of the material. The results are provided as follows:

Your submittal was found to be in full compliance with the standards for submission of data contained in PR Notice 86-5. A copy of your bibliography is enclosed, annotated with Master Record ID's (MRIDs) assigned to each document submitted. Please use these numbers in all future references to these documents. Thank you for your cooperation. If you have any questions concerning this data submission, please raise them with the cognizant Product Manager, to whom the data have been released.

**BIOLOGIC** INC.  
*agribusiness professionals*

February 21, 2012

Ms. Kathryn Valente Montague  
Product Manager, PM Team #23  
Herbicide Branch (7505P)  
Office of Pesticide Programs  
U.S. Environmental Protection Agency  
Ariel Rios Building  
1200 Pennsylvania Avenue, N.W.  
Washington, D.C. 20460

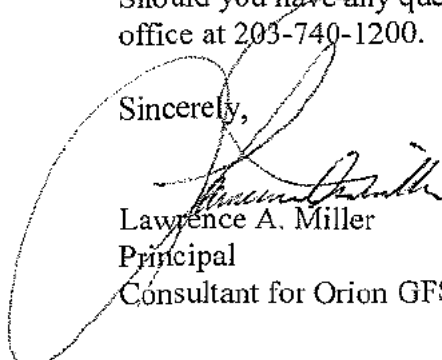
SUBJECT: "Glufosinate 280 Herbicide"; EPA Reg. No. 88685-E

Dear Ms. Montague:

This is in further reference to our meeting on February 14, 2012 regarding the above subject. As we discussed and agreed at that meeting, please find the enclosed revised data matrix, as well as three (3) copies of the Self-Certification Statement for the Physical/Chemical Properties of the subject product.

Should you have any questions or otherwise wish to reach me, please feel free to contact my office at 203-740-1200.

Sincerely,



Lawrence A. Miller  
Principal  
Consultant for Orion GFS, LLC

cc: Mr. R. Bastian

Transmittal #

48749601

Glufosinate 280 Herbicide  
Physical/chemical characteristics



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## DATA MATRIX

Date 2/20/2012

EPA Reg No./File Symbol 88685-E

Page 1 of 4

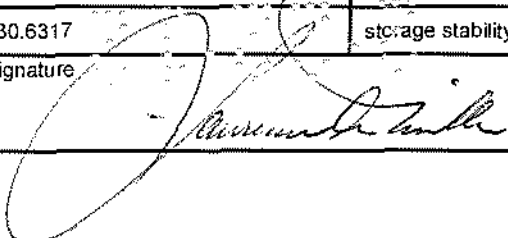
Applicant's/Registrant's Name &amp; Address

Orion GFS, LLC, 12230 E. Del Norte, Yuma, AZ 85367-7355

Product



Glufosinate 280 Herbicide

Ingredient Glufosinate-Ammonium

Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
830.1550	product identification and disclosure of ingredients	48610301	Orion GFS, LLC	OWN	
830.1600	description of beginning materials	48610301	Orion GFS, LLC	OWN	
830.1650	description of formulation process	48610301	Orion GFS, LLC	OWN	
830.1670	discussion of formation of impurities	48610301	Orion GFS, LLC	OWN	
830.1700	preliminary analysis	48610301	Orion GFS, LLC	OWN	
830.1750	certification of limits	48610301	Orion GFS, LLC	OWN	
830.1800	enforcement analytical method	48607303	Orion GFS, LLC	OWN	
830.6302	color		Orion GFS, LLC	OWN	
830.6303	physical state		Orion GFS, LLC	OWN	
830.6304	odor		Orion GFS, LLC	OWN	
830.6313	stability to normal and elevated temperatures		not applicable; not a technical		
830.6314	oxidation / reduction: chemical incompatibility		not applicable; not a technical		
830.6315	flammability		not applicable; no combustible solvent		
830.6316	explosibility		not applicable; not potentially explosive		
830.6317	storage stability		Orion GFS, LLC; in progress	OWN	
Signature 			Name and Title: Lawrence A. Miller, Consultant for Orion GFS, LLC		Date: 2/20/2012

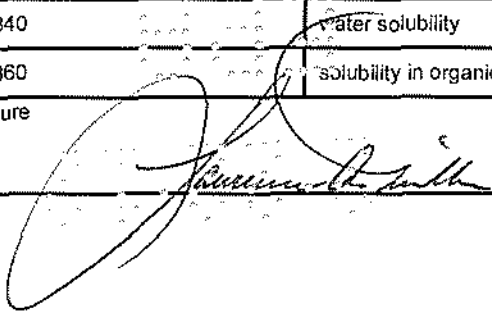
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## DATA MATRIX

Date 2/20/2012		EPA Reg No./File Symbol 88585-E		Page 1 of 4	
Applicant's/Registrant's Name & Address		Product			
Orion GFS, LLC, 12230 E. Del Norte, Yuma, AZ 85367-7355		Glufosinate 280 Herbicide			
Ingredient Glufosinate-Ammonium					
Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
			Orion GFS, LLC	OWN	
			Orion GFS, LLC	OWN	
			Orion GFS, LLC	OWN	
			Orion GFS, LLC	OWN	
			Orion GFS, LLC	OWN	
			Orion GFS, LLC	OWN	
			Orion GFS, LLC	OWN	
			Orion GFS, LLC	OWN	
			Orion GFS, LLC	OWN	
			Orion GFS, LLC	OWN	
			not applicable; not a technical		
			not applicable; not a technical		
			not applicable; no combustible solvent		
			not applicable; not potentially explosive		
			Orion GFS, LLC; in progress	OWN	
Signature 		Name and Title: Lawrence A. Miller, Consultant for Orion GFS, LLC		Date: 2/20/2012	

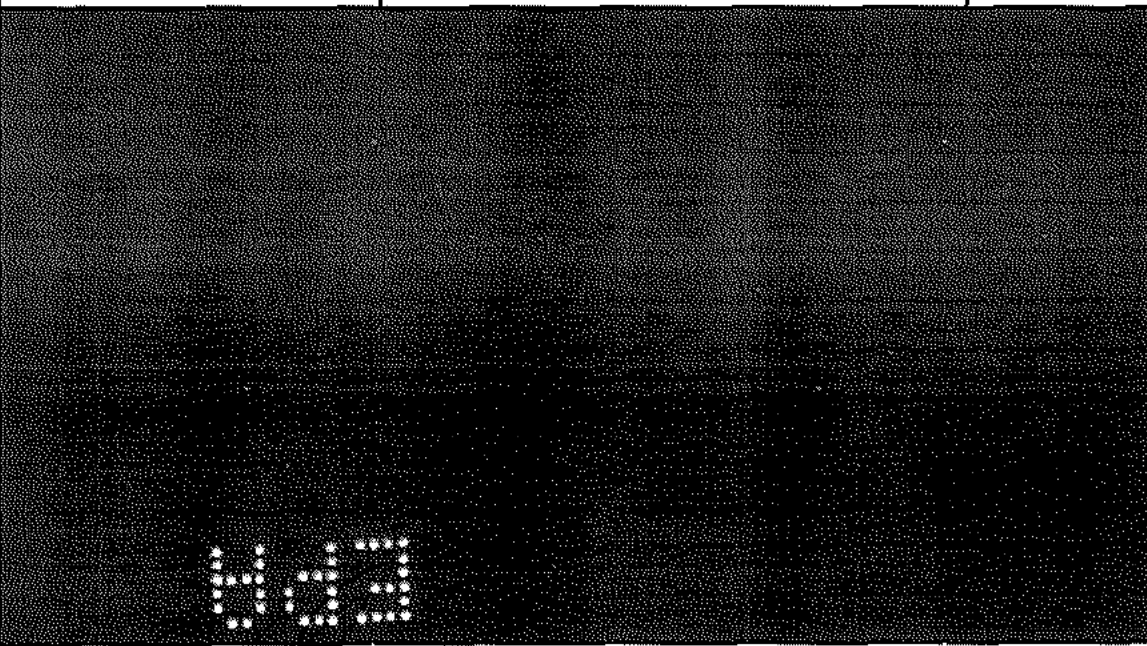
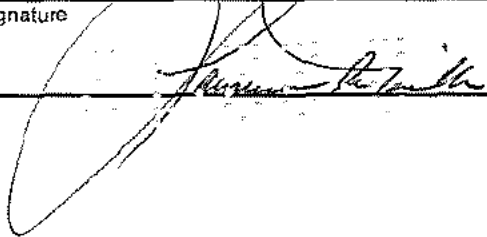
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**DATA MATRIX**

Date 2/20/2012			EPA Reg No./File Symbol 88685-E		Page 2 of 4
Applicant's/Registrant's Name & Address Orion GFS, LLC, 12230 E. Del Norte, Yuma, AZ 85367-7355			Product Glufosinate 280 Herbicide		
Ingredient Glufosinate-Ammonium					
Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
630.6319	miscibility		not applicable; not for mixing with oil		
830.6320	corrosion characteristics		Orion GFS, LLC; in progress	OWN	
830.6321	dielectric breakdown voltage		not applicable; not for indoor use		
830.7000	pH		Orion GFS, LLC	OWN	
830.7050	UV / visible absorption		not applicable; not a technical		
830.7100	viscosity		Orion GFS, LLC	OWN	
830.7200	melting point		not applicable; not a technical		
830.7220	boiling point		not applicable; not a technical		
830.7300	density / relative density		Orion GFS, LLC	OWN	
830.7370	dissociation constant in water		not applicable; not a technical		
830.7570	octanol / water partition coefficient		not applicable; not a technical		
830.7840	water solubility		not applicable; not a technical		
830.7860	solubility in organic solvents		not applicable; not a technical		
Signature 			Name and Title: Lawrence A. Miller, Consultant for Orion GFS, LLC		Date: 2/20/2012

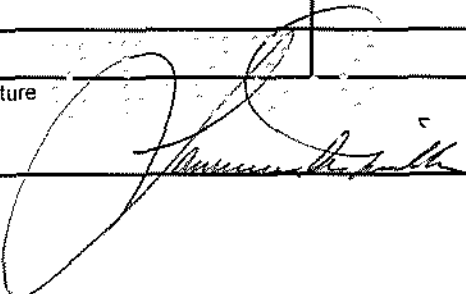
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Date 2/20/2012		EPA Reg No./File Symbol 88585-E		Page 2 of 4	
Applicant's/Registrant's Name & Address Orion GFS, LLC, 12230 E. Del Norte, Yuma, AZ 85367-7355		Product Glufosinate 280 Herbicide			
Ingredient Glufosinate-Ammonium					
Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
			not applicable; not for mixing with oil		
			Orion GFS, LLC; in progress	OWN	
			not applicable; not for indoor use		
			Orion GFS, LLC	OWN	
			not applicable; not a technical		
			Orion GFS, LLC	OWN	
			not applicable; not a technical		
			not applicable; not a technical		
			Orion GFS, LLC	OWN	
			not applicable; not a technical		
			not applicable; not a technical		
			not applicable; not a technical		
Signature 		Name and Title: Lawrence A. Miller, Consultant for Orion GFS, LLC		Date: 2/20/2012	

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## DATA MATRIX

Date 2/20/2012			EPA Reg No./File Symbol 88685-E		Page 3 of 4
Applicant's/Registrant's Name & Address Orion GFS, LLC, 12230 E. Del Norte, Yuma, AZ 85367-7355			Product Glufosinate 280 Herbicide		
Ingredient Glufosinate-Ammonium					
Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
830.7950	vapor pressure		not applicable; not a technical		
870.1100	acute oral toxicity: rat	46279002	Bayer Cropscience LP	PAY	
870.1200	acute dermal toxicity	46279003	Bayer Cropscience LP	PAY	
870.1300	acute inhalation toxicity	46279004	Bayer Cropscience LP	PAY	
870.2400	acute eye irritation	46279005	Bayer Cropscience LP	PAY	
870.2500	acute dermal irritation	46279006	Bayer Cropscience LP	PAY	
870.2600	skin sensitization	46279007	Bayer Cropscience LP	PAY	
Signature 			Name and Title: Lawrence A. Miller, Consultant for Orion GFS, LLC		Date: 2/20/2012



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## DATA MATRIX

Date 2/20/2012		EPA Reg No./File Symbol 88685-E		Page 3 of 4	
Applicant's/Registrant's Name & Address Orion GFS, LLC, 12230 E. Del Norte, Yuma, AZ 85367-7355		Product Glufosinate 280 Herbicide			
Ingredient Glufosinate-Ammonium					
Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
			not applicable; not a technical		
			Bayer Cropscience LP	PAY	
			Bayer Cropscience LP	PAY	
			Bayer Cropscience LP	PAY	
			Bayer Cropscience LP	PAY	
			Bayer Cropscience LP	PAY	
			Bayer Cropscience LP	PAY	
Signature 			Name and Title: Lawrence A. Miller, Consultant for Orion GFS, LLC		Date: 2/20/2012

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## DATA MATRIX

Date 2/20/2012

EPA Reg No./File Symbol 88685-E

Page 4 of 4


Applicant's/Registrant's Name &amp; Address

Orion GFS, LLC, 12230 E. Del Norte, Yuma, AZ 85367-7355

Product


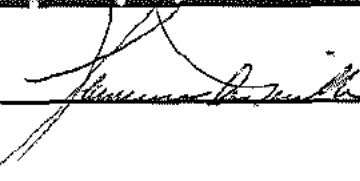
Glufosinate 280 Herbicide

Ingredient Glufosinate-Ammonium

Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
other Series 870: cite-all	Toxicology: generic data	multiple	Bayer Cropscience LP	PAY	
Series 810: cite-all	Product Performance: generic data		Bayer Environmental Science	PAY	
Series 835: cite-all	Fate, Transport and Transformation: generic data		Spray Drift Task Force	PAY	
Series 840: cite-al	Spray Drift: generic data		Outdoor Residential Exposure Task Force	PAY	
Series 850: cite-at	Ecological Effects: generic data		Agricultural Reentry Task Force	PAY	
Series 860: cite-all	Residue Chemistry: generic data		FIFRA Endangered Species Task Force	PAY	
Series 875: cite-all	Occupational and Residential Exposure: generic data		Residential Exposure Joint Venture	PAY	
			Agricultural Handlers Exposure Task Force	PAY	
Signature 			Name and Title: Lawrence A. Miller, Consultant for Orion GFS, LLC		Date: 2/20/2012

**Paperwork Reduction Act Notice:** The public reporting burden for this collection of information is estimated to average 0.25 hours per response for registration activities and 0.25 hours per response for reregistration and special review activities, including time for reviewing the instructions and completing the necessary forms. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden to: Director, OPPE Information Management Division (2137), U.S. Environmental Protection Agency, 401 M Street, S.W., Washington, DC 20460. Do not send the form to this address.

## DATA MATRIX

Date 2/20/2012			EPA Reg No./File Symbol 88685-E		Page 4 of 4
Applicant's/Registrant's Name & Address Orion GFS, LLC, 12230 E. Del Norte, Yuma, AZ 85367-7355			Product Glufosinate 280 Herbicide		
Ingredient Glufosinate-Ammonium					
Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
			Bayer Cropscience LP	PAY	
			Bayer Environmental Science	PAY	
			Spray Drift Task Force	PAY	
			Outdoor Residential Exposure Task Force	PAY	
			Agricultural Reentry Task Force	PAY	
			FIFRA Endangered Species Task Force	PAY	
			Residential Exposure Joint Venture	PAY	
			Agricultural Handlers Exposure Task Force	PAY	
Signature 			Name and Title: Lawrence A. Miller, Consultant for Orion GFS, LLC		Date: 2/20/2012





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

**CERTIFIED MAIL**

Mr. Robert Hawk  
Source Dynamics, LLC  
Agent for Orion GFS, LLC  
12230 E. Del Norte  
Yuma, AZ 85367-7355

Dear Mr. Hawk:

Subject: Application for Registration  
Glufosinate 280 Herbicide  
EPA File Symbol 88685-E

Your application of September 21, 2011, has been found to be incomplete (deficiencies are outlined below). Pursuant to 40 CFR 152.105, you have 75 days to address the deficiencies or notify the Agency when the information will be submitted to address the deficiencies. If you do not respond within 75 days of the date of the letter, the Agency will treat your applications as if it has been withdrawn. Once the application is withdrawn, any subsequent submission relating to this action must be submitted as a new application.

The following deficiencies exist for the proposed product:

1. The self-certified Group B product chemistry data for the proposed product are not acceptable. They are not based on the proposed product or on products which are identical to the proposed product (see page 4 of the enclosed review for further details).
2. Due to the unacceptability of the cited Group B data, a determination of substantial similarity between the proposed product and the cited product (EPA Reg. No. 264-829) could not be made. This determination cannot be made until Group B data for the proposed product are received and found to be acceptable.

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**CERTIFIED MAIL<sup>®</sup> RECEIPT**  
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For delivery information visit our website at [www.usps.com](http://www.usps.com).

**OFFICIAL USE**

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Total Postage & Fees	\$	

Sent To: Bob Hawk 88685-E  
Street, Apt. No.,  
or PO Box No. 2/3/12  
City, State, ZIP+4

PS Form 3800, June 2002 See Reverse for Instructions  
FEB - 3 2012

3. The source of active ingredient in the alternative formulation (Alt #1) is unregistered. The acceptability of this alternate formulation cannot be determined until the source is registered.

A copy of the product chemistry review is enclosed for your reference.

The PRIA Date for this action is February 19, 2012. If you choose to not withdraw this product, a new date will need to be renegotiated with you. Please contact me at your earliest convenience regarding this matter.

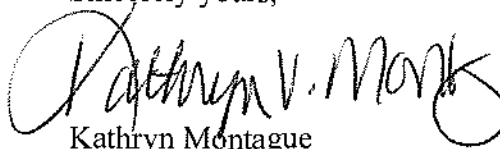
Please submit this information to Kathryn V. Montague by:

- 1) E-mail ([Montague.kathryn@epa.gov](mailto:Montague.kathryn@epa.gov))
- 2) Fax (703-605-0781)
- 3) Hand deliver or next day delivery at:

Kathryn Montague, Room number 4900  
U.S. EPA  
Registration Division (7505P)  
One Potomac Yard (South Building)  
2777 S. Crystal Drive  
Arlington, VA 22202

Thank you for your attention to this matter. If you have any questions concerning this letter please contact Kathryn Montague at 703-305-1243 or via email at [montague.kathryn@epa.gov](mailto:montague.kathryn@epa.gov).

Sincerely yours,



Kathryn Montague  
Product Manager (23)  
Herbicide Branch  
Registration Division (7505P)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

OFFICE OF CHEMICAL SAFETY  
AND POLLUTION PREVENTION

OFFICE OF PESTICIDE PROGRAMS  
REGISTRATION DIVISION (7505P)

DP BAR CODE NO.: 395119  
PC Code(s): 128850  
FOOD Use: Yes

FILE SYMBOL NO.: 88685-E DECISION NO.: 455583  
ACTION CODE: R301  
NON-FOOD Use: Yes

DATE OUT: January 20, 2012

SUBJECT: End Use Product Chemistry Review  
Product Name: Glufosinate 280 Herbicide

FROM: Hari Mukhoty  
Product Chemistry Team  
Technical Review Branch / Registration Division (7505P)

TO: James Stone / Kathryn Montague RM - 23  
Herbicide Branch / Registration Division (7505P)

Company Name: Orion GFS, LLC  
Formulation Type: SL (soluble concentrate)

INTRODUCTION:

The Registrant has submitted one basic CSF (dated: 09/21/2011), one amended CSF (dated: 09/21/2011) as alternate formulation (Alt. # 1) to the aforesaid basic and has proposed a product specific label for registration of the aforesaid products under EPA File Symbol No. 88685-E. The product chemistry Group A data have been submitted under MRID: 486103-01. The Group B data have been Self-Certified. The GLP certification statement has been signed by the agent only. No name of the performing laboratory has been mentioned under GLP.

TRB has been requested to evaluate the product chemistry data required for the registration of the proposed products.

SUMMARY OF FINDINGS:

1. Name of Active Ingredient(s): Glufosinate-ammonium (24.5%).
2. Has the registrant claimed substantial similarity to registered product?  
☒ Yes ☐ No ☐ NA If yes: EPA Reg. No. 264-829
3. The source material(s) of the active ingredient(s) is/are registered with the Agency. The source material of the active ingredient of the alternate formulation (# 1) is not registered with the Agency and is currently undergoing through the process of registration.
4. All inert ingredients have been screened by IIAB on 10/06/2011 and were approved for food uses (Pre-Harvest Application to growing crops).
5. The CSFs of the proposed basic and alternate formulations have been filled out completely and correctly.

DP BAR CODE NO.: 395119  
PC Code(s): 128850  
FOOD Use: Yes

FILE SYMBOL NO.: 88685-E DECISION NO.: 455583  
ACTION CODE: R301  
NON-FOOD Use: Yes

6. Confidential Statement of Formula(s):

[X] Basic - Dated: 09/21/2011 re-submitted – Dated: NA  
[X] Alternate- # 1 Dated: 09/21/2011 re-submitted: Dated: NA

Alternate CSF(s) complies with 40CFR §152.43: [X] Yes [ ] No NA [ ].

7. Product label

a. Ingredient statement: Nominal concentration of AI listed on CSF(s) concur with product label (PR Notice 91-2)  
[X] Yes

Is the sub statement in compliance with PR Notice 97-6?

[ ] Yes [X] No - Uses the term "Other Ingredients"  
if not, explain below: Uses the term "Inert Ingredients"

Metallic equivalent: [ ] Yes [X] NA;  
Soluble arsenic: [ ] Yes [X] NA  
Isomeric ratios: [ ] Yes [X] NA  
Acid equivalent: [ ] Yes [X] NA

b. Health related sub statements:

Petroleum distillate at > 10%: [ ] Yes [ ] No [X] NA  
Methanol at > 4%: [ ] Yes [ ] No [X] NA  
Sodium Nitrate / Sodium Nitrite [ ] yes [ ] No [X] NA

c. Physical chemical hazard statement: Product label has a statement per 40 CFR §156.78 for: flammability, explosive potential or electric insulator breakdown?

[ ] Yes [X] No

Total Release Fogger PR Notice 98-6 (40 CFR 156.78 d): [ ] Yes [ ] No [X] NA

d. Label requires an additional Storage and Disposal statement: [ ] Yes [X] No – from product chemistry point of view; if yes explain below:

Final decision of overall label acceptance will be made by the PM.

DP BAR CODE NO.: 395119  
 PC Code(s): 128850  
 FOOD Use: Yes

FILE SYMBOL NO.: 88685-E DECISION NO.: 455583  
 ACTION CODE: R301  
 NON-FOOD Use: Yes

8. Group A: Product Chemistry Data

TRB's determination of the acceptability of the data for the proposed product is listed in the tables below.

Guideline No.	Study Title		Data submitted		TRB's Assessment of Data	MRID Nos. 486103-01 / Also Cited 462904-01
			Yes	No		
830.1550	Product Identity & Composition		X		A	"
830.1600	Description of materials used to produce the product		X		A	"
830.1650	Description of formulation process		X		A	"
830.1670	Discussion on the formation of impurities		X		A	"
830.1700	Preliminary analysis			X	NA	"
830.1750	Certified limits (158.350)	Standard certified Limits	X		A	
		Justification for wider limits				
830.1800	Enforcement analytical method #		X		A	Cited from EPA Reg. No. 264-829, MRID: 462904-01 (see Data Matrix)

A = Acceptance, NA = Not Acceptable, G = Data Gap,  
 W = Waiver Request, I = In Progress, NA = Not Applicable  
 # Analytical Method: HPLC method was used utilizing UV detector set at 193 nm

DP BAR CODE NO.: 395119  
PC Code(s): 128850  
FOOD Use: Yes

FILE SYMBOL NO.: 88685-E DECISION NO.: 455583  
ACTION CODE: R301  
NON-FOOD Use: Yes

9. Group B: (see notes below)

Guideline No.	Study Title	Value or Qualitative Description	TRB's Assessment of Data	MRID Nos. Self-Certified, & cited from several products
830.6303	Physical State		N	"
830.6315	Flammability		N	"
830.6316	Explosibility		N	"
830.7000	pH		N	"
830.7300	Density		N	"

A = Acceptance, N = Not Acceptable, G = Data Gap, W = Waiver request,  
NA = Not applicable, I = In progress

Group B data have been self-certified from MRIDs: 462904-01 (EPA Reg. No. 264-829), 465327-01 (EPA Reg. No. 264-668) and 437669-12 (EPA Reg. No. 264-660). According to PR Notice 98-1, these are not "applicable studies" meaning the aforesaid studies are not based on proposed product or studies from products which are identical to the proposed product.

**CONCLUSIONS:**

1. TRB has reviewed the CSFs (dated: 09/21/2011) for the proposed basic and alternate formulation (Alt. # 1) and has found them to be unacceptable because the self-certified Group B data are not acceptable. The acceptability of the alternate formulation can be determined pending the acceptance for registration of the source material of the active ingredient. The CSFs are attached with this review and can be located in OPPIN CHEM DOCS.
2. Substantial similarity between the proposed products and the cited product (EPA Reg. No. 264-829) can be determined only when the product specific Group B data for the proposed products are received and found to be acceptable by TRB.
3. Product chemistry Group A data are satisfied and acceptable. Product specific Group B data are required for the registration of the proposed products.
4. The registrant must generate one year storage stability (830.6317) and corrosion characteristics (830.6320) data on the proposed products. It is required that the observations be made at 0, 3, 6, 9, and 12 month intervals. The results must be submitted to the Agency in electronic and hard copy format.
5. The proposed label will be screened as it pertains to the product chemistry requirements when product specific Group B data are evaluated by TRB. The final review of the proposed label and uses will fall within the purview of the PM team.

# DATA PACKAGE BEAN SHEET

Date: 14-Oct-2011

Page 1 of 2

Decision #: 455583

DP #: (395119)

PRIA

Parent DP #:

Submission #: 904235

E-Sub #:

## \*\*\* Registration Information \*\*\*

Registration: 88685-E - GLUFOSINATE 280 HERBICIDE

Company: 88685 - ORION GFS, LLC

Risk Manager: RM 23 - Kathryn Montague - (703) 305-1243 Room# PY1 S-7332

Risk Manager Reviewer: James Stone JSTONE

Sent Date:

Calculated Due Date: 19-Feb-2012

Edited Due Date:

Type of Registration: Product Registration - Section 3

Action Desc: (R301) NEW PRODUCT; IDENTICAL OR SUBSTANTIALLY SIMILAR IN COMPOSITION AND

Ingredients: 128850, Glufosinate(24.5%)

Expedite: ☐ Yes ☒ No

DP Ingredient: 128850, Glufosinate

DP Title:

CSF Included: ☒ Yes ☐ No

Assigned To

Organization: RD / TRB

Team Name: CHEM

Reviewer Name:

HARI MU

Contractor Name:

Due Back:

able Science Due Date: 20-Jan-2012

Science Due Date:

ata Package Due Date:

## \*\*\* Studies Sent for Review \*\*\*

Printed on Page 2

## \*\*\* Additional Data Package for this Decision \*\*\*

Can be printed on its own page

## \*\*\* Data Package Instructions \*\*\*

Review product chemistry data submitted to support application for registration. Note for the alternate formula the source of active ingredient is in currently in review - DP# 395006.

DP#: (395119)

\*\*\* Studies Sent for Review \*\*\*

Decision#: (455583)

MRID	MRID Status	Citation Reference	Guideline
48610301		Hawk, R. (201 f) Glufosinate 280 Herbicide: Product Identity, Description of Materials, Manufacturing Process, Discussion of Impurities and Certification of Limits. Project Number: OG1 f10C. Unpublished study prepared by Orion GFS, LLC. 39p.	830.1600/Description of materials used to produce the product
4861030 f		Hawk, R. (201 t) Glufosinate 280 Herbicide: Product Identity, Description of Materials, Manufacturing Process, Discussion of Impurities and Certification of Limits. Project Number: OG1 t10C. Unpublished study prepared by Orion GFS, LLC. 39p.	830.1670/Discussion of formation of impurities
48610301		Hawk, R. (20 f) Glufosinate 280 Herbicide: Product Identity, Description of Materials, Manufacturing Process, Discussion of Impurities and Certification of Limits. Project Number: OG1 f10C. Unpublished study prepared by Orion GFS, LLC. 39p.	830.1750/Certified limits
48610301		Hawk, R. (201 t) Glufosinate 280 Herbicide: Product Identity, Description of Materials, Manufacturing Process, Discussion of Impurities and Certification of Limits. Project Number: OG1 t10C. Unpublished study prepared by Orion GFS, LLC. 39p.	830.1620/Description of production process
4861030 t		Hawk, R. (20 f t) Glufosinate 280 Herbicide: Product Identity, Description of Materials, Manufacturing Process, Discussion of Impurities and Certification of Limits. Project Number: OG1 f10C. Unpublished study prepared by Orion GFS, LLC. 39p.	830.1550/Product Identity and composition





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

OFFICE OF CHEMICAL SAFETY AND  
POLLUTION PREVENTION

**TECHNICAL REVIEW BRANCH  
SIMILARITY CLINIC DETERMINATION**

19/JAN/2012

MEMORANDUM

Subject: Name of Pesticide Product: Glufosinate 280 Herbicide  
EPA Reg. No. /File Symbol: 88685-E  
DP Barcode: D395120  
Decision No: 455583  
Action Code: R301  
PC Code: 128850 (glufosinate)

From: Eugenia McAndrew, Biologist  
Technical Review Branch  
Registration Division (7505P)

*E. McAndrew*

*Thompson  
T-L TOXICOLOGY*

To: Kathryn Montague, RM Team 23  
Herbicide Branch  
Registration Division (7505P)

Applicant: Orion GFS, LLC  
12230 E. Del Norte  
Yuma, AZ 85367-7355

FORMULATION FROM LABEL:

<u>Active Ingredient(s):</u>	<u>% by wt.</u>
Glufosinate-ammonium	24.5
<u>Inert Ingredient(s):</u>	<u>75.5</u>
Total:	100.0%

**ACTION REQUESTED:** The Risk Manager requests: "Under the Selective Method the applicant is citing Bayer Corporation Acute Studies 46279002 through 46279007."

**BACKGROUND:** Orion GFS, LLC has applied for registration of Glufosinate 280 Herbicide, EPA File Symbol 88685-E, claiming similarity to Liberty 280 SL Herbicide, EPA Reg. No. 264-829. Both products contain 24.5% glufosinate as the active ingredient. The submission includes a basic CSF and one alternate CSF dated September 21, 2011, a label, a data matrix and company letter.

The registrant is using the selective method of data support to satisfy the acute toxicity data requirements. The data matrix cites acute toxicity studies with MRIDs 462790-02 to -07. A search of the OPP electronic databases shows that these studies were submitted to support the registration of the cited product, 264-829. They were reviewed and classified as acceptable in a prior TRB memo (Backus; D304388; EPA File Symbol 264-IEO; 07/JUL/2004).

#### **RECOMMENDATIONS:**

1. TRB compared the basic CSFs of the proposed product, 88685-E, and the cited product, 264-829, and concluded that the two products are substantially similar. The acute toxicity data referenced above may be used to support the registration of the proposed product.
2. The acute toxicity profile for the proposed product, Glufosinate 280 Herbicide, EPA File Symbol 88685-E, is as follows:

acute oral toxicity	III	cited	MRID 46279002
acute dermal toxicity	II	cited	MRID 46279003
acute inhalation toxicity	IV	cited	MRID 46279004
primary eye irritation	II	cited	MRID 46279005
primary skin irritation	IV	cited	MRID 46279006
dermal sensitization	pos.	cited	MRID 46279007

3. The proposed basic CSF and one alternate CSF submitted for 88685-E must be approved by the TRB Product Chemistry Team.

**LABELING:** Based on the toxicity profile above, the following are the precautionary and first aid statements for this product as obtained from the Label Review System:

**PRODUCT ID #:** 088685-00002

**PRODUCT NAME:** Glufosinate 280 Herbicide

#### **PRECAUTIONARY STATEMENTS**

**SIGNAL WORD:** WARNING

**SPANISH SIGNAL WORD:** AVISO

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.  
(If you do not understand the label, find someone to explain it to you in detail.)

### **Hazards to Humans and Domestic Animals:**

May be fatal if absorbed through skin. Causes substantial but temporary eye injury. Harmful if swallowed. Do not get in eyes, on skin, or on clothing. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

Wear coveralls over short-sleeved shirt and short pants, socks, chemical-resistant footwear and chemical resistant gloves, selection category C. Wear protective eyewear (goggles, face shield, or safety glasses).

Follow the manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry. When mixing and loading wear a chemical resistant apron. For overhead exposure wear chemical-resistant headgear. When cleaning equipment wear a chemical-resistant apron.

### **First Aid:**

If on skin:

- Take off contaminated clothing.
- Rinse skin immediately with plenty of water for 15-20 minutes.
- Call a poison control center or doctor for treatment advice.

If in eyes:

- Hold eye open and rinse slowly and gently with water for 15-20 minutes.
- Remove contact lenses, if present, after the first 5 minutes, then continue rinsing.
- Call a poison control center or doctor for treatment advice.

If swallowed:

- Call a poison control center or doctor immediately for treatment advice.
- Have person sip a glass of water if able to swallow.
- Do not induce vomiting unless told to by a poison control center or doctor.
- Do not give anything by mouth to an unconscious person.

Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact 1-800-xxx-xxxx for emergency medical treatment information.

### **User Safety Recommendations:**

Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse.

# DATA PACKAGE BEAN SHEET

Date: 14-Oct-2011

Page 1 of 1

Decision #: 455583

DP #: (395120)

PRIA 395119 Chem

Parent DP #:

Submission #: 904235

E-Sub #:

## \*\*\* Registration Information \*\*\*

Registration: 88685-E - GLUFOSINATE 280 HERBICIDE

Company: 88685 - ORION GFS, LLC

Risk Manager: RM 23 - Kathryn Montague - (703) 305-1243 Room# PY1 S-7332

Risk Manager Reviewer: James Stone JSTONE

Sent Date:

Calculated Due Date: 19-Feb-2012

Edited Due Date:

Type of Registration: Product Registration - Section 3

Action Desc: (R301) NEW PRODUCT; IDENTICAL OR SUBSTANTIALLY SIMILAR IN COMPOSITION AND

Ingredients: 128850, Glufosinate(24.5%)

R301  
29595

## \*\*\* Data Package Information \*\*\*

Expedite: ☐ Yes ☒ No

Date Sent: 14-Oct-2011

Due Back:

DP Ingredient: 128850, Glufosinate

DP Title:

CSF Included: ☒ Yes ☐ No

Label Included: ☒ Yes ☐ No

Parent DP #:

Assigned To

Date In

Date Out

Organization: RD / TRB

Last Possible Science Due Date: 20-Jan-2012

Team Name: TOX

Science Due Date:

Reviewer Name:

Sub Data Package Due Date:

Contractor Name:

## \*\*\* Studies Sent for Review \*\*\*

No Studies

## \*\*\* Additional Data Package for this Decision \*\*\*

Can be printed on its own page

## \*\*\* Data Package Instructions \*\*\*

For Similarity Clinic.

Under the Selective Method the applicant is citing Bayer Cropscience Acute Studies 46279002 through 46279007.

*ORION GFS, LLC*

September 21, 2011

Document Processing Desk (APPL)  
Office of Pesticide Programs (P7504C)  
Environmental Protection Agency  
Room S-4900, One Potomac Yard (South Building)  
2777 S. Crystal Drive  
Arlington, VA 22202

Attn: Kathryn Montague (PM 23), Herbicide Branch, Registration Division

Dear Ms. Montague:

Subject: Glufosinate 280 Herbicide (EPA File Symbol 88685-E):  
Registration Application

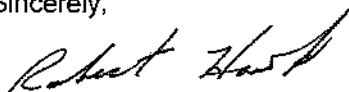
Orion GFS, LLC wishes to register a formulated product that is substantially similar to another currently registered product. In support of this application we have enclosed the following:

Application for Pesticide Registration (8570-1)  
Confidential Statement of Formula (8570-4)  
Formulator's Exemption Statement (8570-27)  
Certification with Respect to Citation of Data (8570-34)  
Data Matrix (8570-35)  
Summary of the Physical/Chemical Properties (8570-36)  
Self-Certification Statement for the Physical/Chemical Properties (8570-37)  
Proposed label (6 copies)  
Supporting studies (3 copies, with Data Transmittal Document)

We have concluded that this regulatory action falls in PRIA II Category R301, for which the fee is \$1720. Confirmation of payment is enclosed.

Please contact me if you have any questions.

Sincerely,



Robert Hawk  
Source Dynamics LLC  
Agent for Orion GFS, LLC

## DATA TRANSMITTAL DOCUMENT

Name and Address of Data Submitter

Orion GFS, LLC  
12230 E. Del Norte  
Yuma, AZ 85367-7355

Regulatory Action in Support of Which This Package is Submitted

Registration Application (88685-E): Glufosinate 280 Herbicide

Transmittal Date

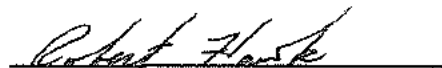
September 21, 2011

Submitted Studies (3 Copies)

**48610301** R. E. Hawk, "Glufosinate 280SL Herbicide: Product Identity, Description of Materials, Manufacturing Process, Discussion of Impurities and Certification of Limits," Report No. OG1110C (September 21, 2011), 39 pages, OPPTS 830.1550, 830.1600, 830.1620, 830.1670 and 830.1670

Company Official: Robert Hawk

Signature:



Company Name: Orion GFS, LLC  
Company Contact: Robert Hawk  
Source Dynamics LLC  
Agent for Orion GFS, LLC  
rhawk@solerasd.com  
telephone (928) 342-3489



United States  
Environmental Protection Agency  
Washington, DC 20460

☒ Registration  
☐ Amendment  
☐ Other

OPP Identifier Number

## Application for Pesticide - Section I

1. Company/Product Number 88685-E	2. EPA Product Manager Kathryn Montague	3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) Glufosinate 280 Herbicide	PM# 23	
5. Name and Address of Applicant (Include ZIP Code) Orion GFS, LLC 12230 E. Del Norte, Yuma, AZ 85367-7355  <input type="checkbox"/> Check if this is a new address	6. Expedited Review. In accordance with FIFRA Section 3(c)(3)(b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. 264-829 Product Name Liberty 280 5L Herbicide	

## Section - II

<input type="checkbox"/> Amendment - Explain below.	<input type="checkbox"/> Final printed labels in response to Agency letter dated _____
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input checked="" type="checkbox"/> "Me Too" Application.
<input type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - Explain below.

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

This is a registration application for a new end-use product which is substantially similar to another registered product.

## Section - III

1. Material This Product Will Be Packaged In:				2. Type of Container	
Child-Resistant Packaging <input type="checkbox"/> Yes* <input checked="" type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input checked="" type="checkbox"/> Metal	
* Certification must be submitted				<input type="checkbox"/> Plastic	
				<input type="checkbox"/> Glass	
				<input type="checkbox"/> Paper	
				<input type="checkbox"/> Other (Specify) _____	
3. Location of Net Contents Information <input type="checkbox"/> Label <input checked="" type="checkbox"/> Container	4. Size(s) Retail Container 2.5 gal	5. Location of Label Directions <input type="checkbox"/> On Label <input checked="" type="checkbox"/> On Labeling accompanying product			
6. Manner in Which Label is Affixed to Product <input type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled			<input checked="" type="checkbox"/> Other _____		

## Section - IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)					
Name Robert Hawk		Title Agent, Orion GFS, LLC		Telephone No. (Include Area Code) 928-342-3489	
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.					6. Date Application Received (Stamped)
2. Signature 		3. Title Agent, Orion GFS, LLC			
4. Typed Name Robert Hawk		5. Date Sept. 21, 2011			

*ORION GFS, LLC*

September 21, 2011

Document Processing Desk (APPL)  
Office of Pesticide Programs (P7504C)  
Environmental Protection Agency  
Room S-4900, One Potomac Yard (South Building)  
2777 S. Crystal Drive  
Arlington, VA 22202

Attn: Kathryn Montague (PM 23), Herbicide Branch, Registration Division

Dear Ms. Montague:

Subject: Glufosinate 280 Herbicide (EPA File Symbol 88685-E):  
Registration Application

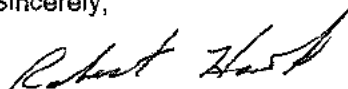
Orion GFS, LLC wishes to register a formulated product that is substantially similar to another currently registered product. In support of this application we have enclosed the following:

Application for Pesticide Registration (8570-1)  
Confidential Statement of Formula (8570-4)  
Formulator's Exemption Statement (8570-27)  
Certification with Respect to Citation of Data (8570-34)  
Data Matrix (8570-35)  
Summary of the Physical/Chemical Properties (8570-36)  
Self-Certification Statement for the Physical/Chemical Properties (8570-37)  
Proposed label (6 copies)  
Supporting studies (3 copies, with Data Transmittal Document)

We have concluded that this regulatory action falls in PRIA II Category R301, for which the fee is \$1720. Confirmation of payment is enclosed.

Please contact me if you have any questions.

Sincerely,



Robert Hawk  
Source Dynamics LLC  
Agent for Orion GFS, LLC



## DATA TRANSMITTAL DOCUMENT

Name and Address of Data Submitter

Orion GFS, LLC  
12230 E. Del Norte  
Yuma, AZ 85367-7355

Regulatory Action in Support of Which This Package is Submitted

Registration Application (88685-E): Glufosinate 280 Herbicide

Transmittal Date

September 21, 2011

Submitted Studies (3 Copies)

R. E. Hawk, "Glufosinate 280SL Herbicide: Product Identity, Description of Materials, Manufacturing Process, Discussion of Impurities and Certification of Limits," Report No. OG1110C (September 21, 2011), 39 pages, OPPTS 830.1550, 830.1600, 830.1620, 830.1670 and 830.1670


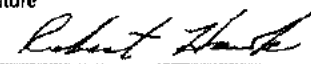
Company Official: Robert Hawk

Signature:



Company Name:  
Company Contact:

Orion GFS, LLC  
Robert Hawk  
Source Dynamics LLC  
Agent for Orion GFS, LLC  
rhawk@solerasd.com  
telephone (928) 342-3489

 <div style="text-align: center;">                     United States  <b>Environmental Protection Agency</b>                      Washington, DC 20460  <b>Formulator's Exemption Statement</b>  <i>(40 CFR 152.85)</i> </div>					
Applicant's Name and Address <b>Orion GFS, LLC</b> 12230 E. Del Norte Yuma, AZ 85367-7355	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px 5px;">EPA File Symbol/Registration Number <b>88685-E</b></td> </tr> <tr> <td style="padding: 2px 5px;">Product Name <b>Glufosinate 280 Herbicide</b></td> </tr> <tr> <td style="padding: 2px 5px;">Date of Confidential Statement of Formula (EPA Form 8570-4) <b>10/06/2011</b></td> </tr> </table>		EPA File Symbol/Registration Number <b>88685-E</b>	Product Name <b>Glufosinate 280 Herbicide</b>	Date of Confidential Statement of Formula (EPA Form 8570-4) <b>10/06/2011</b>
EPA File Symbol/Registration Number <b>88685-E</b>					
Product Name <b>Glufosinate 280 Herbicide</b>					
Date of Confidential Statement of Formula (EPA Form 8570-4) <b>10/06/2011</b>					
As an authorized representative of the applicant for registration of the product identified above, I certify that:					
(1) This product contains the following active ingredient(s): <div style="margin-left: 40px;"><b>glufosinate-ammonium</b></div>					
(2) Of these, each active ingredient listed in paragraph (4) is present solely as the result of the use of that active ingredient in the manufacturing, formulation or repackaging another product which contains that active ingredient which is registered under FIFRA Section 3, is purchased by us from another person and meets the requirements of 40 CFR section 158.50(a)(2) or (3).					
(3) Indicate by checking (A) or (B) below which paragraph applies:					
<input checked="" type="checkbox"/> (A) An accurate Confidential Statement of Formula (EPA FORM 8570-4) for the above identified product is attached to this statement. That formula statement indicates, by company name, registration number, and product name, the source of the active ingredient(s) listed in paragraph (1).					
OR					
<input type="checkbox"/> (B) The Confidential Statement of Formula (CSF)(EPA Form 8570-4) referenced above and on file with the EPA is complete, current, an accurate and contains the information required on the current CSF.					
(4) The following active ingredients in this product qualify for the formulator's exemption.					
<b>Source</b>					
Active Ingredient <b>glufosinate-ammonium</b>	Product Name <div style="background-color: black; width: 100px; height: 15px; margin-bottom: 5px;"></div> <b>Glufosinate-Ammonium Technical</b>	Registration Number <div style="background-color: black; width: 100px; height: 15px; margin-bottom: 5px;"></div> <b>88685-R</b>			
Signature 	Name and Title <b>Robert Hawk, Agent</b>	Date <b>10/06/2011</b>			

EPA Form 8570-27 (Rev. 06-2004)

Copy 1 - EPA  
Copy 2 - Applicant copy

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY 1200 Pennsylvania Avenue, N.W. WASHINGTON, D.C. 20460**

Paperwork Reduction Act Notice: The public reporting burden for this collection of information is estimated to average 1.25 hours per response for registration and 0.25 hours per response for reregistration and special review activities, including time for reading the instructions and completing the necessary forms. Send comments regarding burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden to: Director, Collection Strategies Division (2822T), U.S. Environmental Protection Agency, 1200 Pennsylvania Avenue, N.W., Washington, DC 20460. Do not send the completed form to this address.

**Certification with Respect to Citation of Data**

Applicant's/Registrant's Name, Address, and Telephone Number

Orion GFS, LLC  
12230 E. Del Norte  
Yuma, AZ. 85367-7355

EPA Registration Number/File Symbol

88685-E

Active Ingredient(s) and/or representative test compound(s)

glufosinate-ammonium

Date

Sept. 21, 2011

General Use Pattern(s) (list all those claimed for this product using 40 CFR Part 158)

terrestrial food, terrestrial nonfood

Product Name

Glufosinate 280 Herbicide

**NOTE:** If your product is a 100% repackaging of another purchased EPA-registered product labeled for all the same uses on your label, you do not need to submit this form. You must submit the Formulator's Exemption Statement (EPA Form 8570-27).

I am responding to a Data-Call-In Notice, and have included with this form a list of companies sent offers of compensation (the Data Matrix form should be used for this purpose). ☐

**SECTION I: METHOD OF DATA SUPPORT (Check one method only)**

I am using the cite-all method of support, and have included with this form a list of companies sent offers of compensation (the Data Matrix form should be used for this purpose). ☐

I am using the selective method of support (or cite-all option under the selective method), and have included with this form a completed list of data requirements (the Data Matrix form must be used). ☒

**SECTION II: GENERAL OFFER TO PAY**

[Required if using the cite-all method or when using the cite-all option under the selective method to satisfy one or more data requirements] I hereby offer and agree to pay compensation, to other persons, with regard to the approval of this application, to the extent required by FIFRA. ☒

**SECTION III: CERTIFICATION**

I certify that this application for registration, this form for reregistration, or this Data-Call-In response is supported by all data submitted or cited in the application for registration, the form for reregistration, or the Data-Call-In response. In addition, if the cite-all option or cite-all option under the selective method is indicated in Section I, this application is supported by all data in the Agency's files that (1) concern the properties or effects of this product or an identical or substantially similar product, or one or more of the ingredients in this product; and (2) is a type of data that would be required to be submitted under the data requirements in effect on the date of approval of this application if the application sought the initial registration of a product of identical or similar composition and uses.

I certify that for each exclusive use study cited in support of this registration or reregistration, that I am the original data submitter or that I have obtained the written permission of the original data submitter to cite that study.

I certify that for each study cited in support of this registration or reregistration that is not an exclusive use study, either: (a) I am the original data submitter; (b) I have obtained the permission of the original data submitter to use the study in support of this application; (c) all periods of eligibility for compensation have expired for the study; (d) the study is in the public literature; or (e) I have notified in writing the company that submitted the study and have offered (i) to pay compensation to the extent required by sections 3(c)(1)(F) and/or 3(c)(2)(B) of FIFRA; and (ii) to commence negotiations to determine the amount and terms of compensation, if any, to be paid for the use of the study.

I certify that in all instances where an offer of compensation is required, copies of all offers to pay compensation and evidence of their delivery in accordance with sections 3(c)(1)(F) and/or 3(c)(2)(B) of FIFRA are available and will be submitted to the Agency upon request. Should I fail to produce such evidence to the Agency upon request, I understand that the Agency may initiate action to deny, cancel or suspend the registration of my product in conformity with FIFRA.

I certify that the statements I have made on this form and all attachments to it are true, accurate, and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.

Signature

*Robert Hawk*

Date

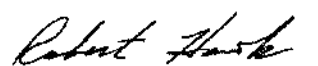
Sept. 21, 2011

Typed or Printed Name and Title

Robert Hawk, Source Dynamics LLC, Agent for Orion GFS, LLC

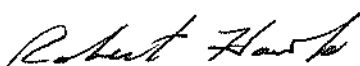
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**DATA MATRIX**

Date 9/21/2011		EPA Reg No./File Symbol 88585-E		Page 1 of 4	
Applicant's/Registrant's Name & Address Orion GFS, LLC, 12230 E. Del Norte, Yuma, AZ 85367-7355		Product Glufosinate 280 Herbicide			
Ingredient Glufosinate-Ammonium					
Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
830.1550	product identification and disclosure of ingredients	48610301	Orion GFS, LLC	OWN	
830.1600	description of beginning materials	48610301	Orion GFS, LLC	OWN	
830.1650	description of formulation process	48610301	Orion GFS, LLC	OWN	
830.1670	discussion of formation of impurities	48610301	Orion GFS, LLC	OWN	
830.1700	preliminary analysis	48610301	Orion GFS, LLC	OWN	
830.1750	certification of limits	48610301	Orion GFS, LLC	OWN	
830.1800	enforcement analytical method	48290401 47619706	Bayer Cropscience LP	PAY	
830.6302	color	46290401	Bayer Cropscience LP	PAY	
830.6303	physical state	46290401	Bayer Cropscience LP	PAY	
830.6304	odor	46290401	Bayer Cropscience LP	PAY	
830.6313	stability to normal and elevated temperatures		not applicable; not a technical		
830.6314	oxidation / reduction: chemical incompatibility		not applicable; not a technical		
830.6315	flammability		not applicable; no combustible solvent		
830.6316	explosibility		not applicable; not potentially explosive		
830.6317	storage stability	46532701	Bayer Cropscience LP	PAY	
Signature 			Name and Title: Robert Hawk, Agent, Orion GFS, LLC		Date: 9/21/2011

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## DATA MATRIX

Date 9/21/2011			EPA Reg No./File Symbol 88685-E		Page 2 of 4
Applicant's/Registrant's Name & Address Orion GFS, LLC, 12230 E. Del Norte, Yuma, AZ 85367-7355			Product Glufosinate 280 Herbicide		
Ingredient Glufosinate-Ammonium					
Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
630.6319	miscibility		not applicable; not for mixing with oil		
830.6320	corrosion characteristics	13766912 46532701	Agrevo USA Co. Bayer Cropscience LP	PAY	
830.6321	dielectric breakdown voltage		not applicable; not for indoor use		
830.7000	pH	46290401	Bayer Cropscience LP	PAY	
830.7050	UV / visible absorption		not applicable; not a technical		
830.7100	viscosity	46290401	Bayer Cropscience LP	PAY	
830.7200	melting point		not applicable; not a technical		
830.7220	boiling point		not applicable; not a technical		
830.7300	density / relative density	46290401	Bayer Cropscience LP	PAY	
830.7370	dissociation constant in water		not applicable; not a technical		
830.7570	octanol / water partition coefficient		not applicable; not a technical		
830.7840	water solubility		not applicable; not a technical		
830.7860	solubility in organic solvents		not applicable; not a technical		
Signature 			Name and Title: Robert Hawk, Agent, Orion GFS, LLC		Date: 9/21/2011

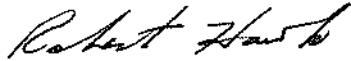
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Applicant's/Registrant's Name & Address Orion GFS, LLC, 12230 E. Del Norte, Yuma, AZ 85367-7355			Product Glufosinate 280 Herbicide		
Ingredient Glufosinate-Ammonium					
Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
830.7950	vapor pressure		not applicable; not a technical		
870.1100	acute oral toxicity: rat	46279002	Bayer Cropscience LP	PAY	
870.1200	acute dermal toxicity	46279003	Bayer Cropscience LP	PAY	
870.1300	acute inhalation toxicity	46279004	Bayer Cropscience LP	PAY	
870.2400	acute eye irritation	46279005	Bayer Cropscience LP	PAY	
870.2500	acute dermal irritation	46279006	Bayer Cropscience LP	PAY	
870.2600	skin sensitization	46279007	Bayer Cropscience LP	PAY	
Signature <i>Robert Hawk</i>			Name and Title: Robert Hawk, Agent, Orion GFS, LLC		Date: 9/21/2011

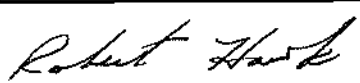
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Applicant's/Registrant's Name & Address Orion GFS, LLC, 12230 E. Del Norte, Yuma, AZ 85367-7355		Product Glufosinate 280 Herbicide			
Ingredient Glufosinate-Ammonium					
Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
other Series 870: cite-all	Toxicology: generic data	multiple	Bayer Cropscience LP	PAY	
Series 810: cite-all	Product Performance: generic data		Bayer Environmental Science	PAY	
Series 835: cite-all	Fate, Transport and Transformation: generic data		Spray Drift Task Force	PAY	
Series 840: cite-all	Spray Drift: generic data		Outdoor Residential Exposure Task Force	PAY	
Series 850: cite-all	Ecological Effects: generic data		Agricultural Reentry Task Force	PAY	
Series 860: cite-all	Residue Chemistry: generic data		FIFRA Endangered Species Task Force	PAY	
Series 875: cite-all	Occupational and Residential Exposure: generic data		Residential Exposure Joint Venture	PAY	
			Agricultural Handlers Exposure Task Force	PAY	
Signature 			Name and Title: Robert Hawk, Agent, Orion GFS, LLC		Date: 9/21/2011

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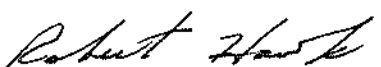
**DATA MATRIX**

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Applicant's/Registrant's Name & Address Orion GFS, LLC, 12230 E. Del Norte, Yuma, AZ 85367-7355			Product Glufosinate 280 Herbicide		
Ingredient Glufosinate-Ammonium					
Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
			Orion GFS, LLC	OWN	
			Orion GFS, LLC	OWN	
			Orion GFS, LLC	OWN	
			Orion GFS, LLC	OWN	
			Orion GFS, LLC	OWN	
			Orion GFS, LLC	OWN	
			Orion GFS, LLC	OWN	
			Bayer Cropscience LP	PAY	
			Bayer Cropscience LP	PAY	
			Bayer Cropscience LP	PAY	
			Bayer Cropscience LP	PAY	
			not applicable; not a technical		
			not applicable; not a technical		
			not applicable; no combustible solvent		
			not applicable; not potentially explosive		
Bayer Cropscience LP	PAY				
Signature 			Name and Title: Robert Hawk, Agent, Orion GFS, LLC		Date: 9/21/2011



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Applicant's/Registrant's Name & Address Orion GFS, LLC, 12230 E. Del Norte, Yuma, AZ 85367-7355			Product Glufosinate 280 Herbicide		
Ingredient Glufosinate-Ammonium					
Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
			not applicable; not for mixing with oil		
			Agrevo USA Co. Bayer Cropscience LP	PAY	
			not applicable; not for indoor use		
			Bayer Cropscience LP	PAY	
			not applicable; not a technical		
			Bayer Cropscience LP	PAY	
			not applicable; not a technical		
			not applicable; not a technical		
			Bayer Cropscience LP	PAY	
			not applicable; not a technical		
			not applicable; not a technical		
			not applicable; not a technical		
			not applicable; not a technical		
			not applicable; not a technical		
Signature 			Name and Title: Robert Hawk, Agent, Orion GFS, LLC		Date: 9/21/2011

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## DATA MATRIX

Date 9/21/2011

EPA Reg No./File Symbol 88685-E

Page 3 of 4

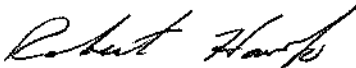
Applicant's/Registrant's Name &amp; Address

Orion GFS, LLC, 12230 E. Del Norte, Yuma, AZ 85367-7355

Product

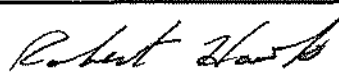
Glufosinate 280 Herbicide

Ingredient Glufosinate-Ammonium

Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
			not applicable; not a technical		
			Bayer Cropscience LP	PAY	
			Bayer Cropscience LP	PAY	
			Bayer Cropscience LP	PAY	
			Bayer Cropscience LP	PAY	
			Bayer Cropscience LP	PAY	
			Bayer Cropscience LP	PAY	
Signature			Name and Title: Robert Hawk, Agent, Orion GFS, LLC		Date: 9/21/2011

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## DATA MATRIX

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Applicant's/Registrant's Name & Address Orion GFS, LLC, 12230 E. Del Norte, Yuma, AZ 85367-7355			Product Glufosinate 280 Herbicide		
Ingredient Glufosinate-Ammonium					
Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
			Bayer Cropscience LP	PAY	
			Bayer Environmental Science	PAY	
			Spray Drift Task Force	PAY	
			Outdoor Residential Exposure Task Force	PAY	
			Agricultural Reentry Task Force	PAY	
			FIFRA Endangered Species Task Force	PAY	
			Residential Exposure Joint Venture	PAY	
			Agricultural Handlers Exposure Task Force	PAY	
Signature 			Name and Title: Robert Hawk, Agent, Orion GFS, LLC		Date: 9/21/2011



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
**401 M Street, S.W.**  
**WASHINGTON, D.C. 20460**

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**SUMMARY OF THE PHYSICAL/CHEMICAL PROPERTIES (PR Notice 98-1)**

1. PRODUCT NAME: Glufosinate 280 Herbicide		2. Reg. No. 88685-E
3. COMPANY NAME: Orion GFS, LLC		4. SUBMISSION DATE: September 21, 2011
5. FIRST SUBMISSION <input checked="" type="checkbox"/>	7. PESTICIDE TYPE: herbicide	10. REGISTRATION <input checked="" type="checkbox"/>
6. RESUBMISSION <input type="checkbox"/>		
8. FORMULATED MANUFACTURING-USE PRODUCT <input type="checkbox"/> or 9. END-USE PRODUCT <input checked="" type="checkbox"/>		11. REREGISTRATION <input type="checkbox"/>
13. PRODUCT MANAGER OR CHEMICAL REVIEW MANAGER #/NAME (IF KNOWN): K. Montague (23)		12. REREG CASE #
14. GUIDELINE REFERENCE NO.(GRN)/TITLE	15. VALUE or QUALITATIVE DESCRIPTION/METHOD(s) USED WHERE APPLICABLE AND REFERENCES	16. MRID or REPORT NO.
<b>Group B, Series 830-Physical and Chemical Properties (40 CFR 158.190)</b>		
-6302 Color	clear blue	46290401
-6303 Physical State	liquid	46290401
-6304 Odor	little or none	46290401
-6314 Oxidation/Reduction: Chemical Incompatibility	not applicable; not a technical	
-6315 Flammability/Flame Extension	not applicable; no flammable solvent in the formulation	
-6316 Explodability	not applicable; contains no component subject to thermal or impact explosibility	
-6317 Storage Stability	stable for 1 year at ambient conditions	46532701
-6319 Miscibility	not applicable; not intended for mixture with oil	
-6320 Corrosion Characteristics	not corrosive to packaging	13760912, 46532701
-6321 Dielectric Breakdown Voltage	not applicable; not for indoor use	
-7000 pH	7.0 +/- 0.2 (1% in water)	46290401
-7100 Viscosity	40 - 100 centistokes (viscosimeter)	46290401
-7300 Density/Relative Density/ Bulk Density	SG = 1.467 (gravimetric)	46290401



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
**1200 Pennsylvania Avenue, N.W.**  
**WASHINGTON, D.C. 20460**

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**SELF-CERTIFICATION STATEMENT FOR THE  
 PHYSICAL/CHEMICAL PROPERTIES (PR NOTICE 98-1)**

Product Name: Glufosinate 280 Herbicide

Reg. No./File Symbol No.  
 (if known) or Company No. 88685-E

**SELF-CERTIFICATION STATEMENT:**

I certify that the reported information on the "Summary Form" represents a true and accurate record of the test results of studies generated or owned by (Company Name): Bayer Cropscience LP

and that the values of the properties reported are reliable.

I further certify that such data were generated in substantial conformity with OPPTS Test Guideline Series 830 Product Properties, applicable to my product, and in effect at the time of submission.

As a condition of registration, EPA may, by order, (1) withdraw a pending registration, (2) suspend the registration of this product without opportunity for hearing, or (3) assess civil penalties provided for in section 14 of FIFRA for violations of section 12(a)(2)(N) of FIFRA without opportunity for hearing, if I have not submitted to EPA within thirty (30) days of receipt of a request by the Agency, or within a specified time agreed to by the Agency, test results of studies summarized in the "Summary Form."

As a condition of registration, EPA may, by order, (1) withdraw a pending registration, (2) suspend the registration of this product without opportunity for hearing, or (3) assess civil penalties provided for in section 14 of FIFRA for violations of sections 12(a)(2)(N), 12(a)(2)(Q), or 12(a)(2)(R) of FIFRA without opportunity for hearing, if I fail to provide to EPA within thirty (30) days of receipt of a notification of error, or within a specified time agreed to by the Agency, information that EPA determines is required to correct the error.

Type Applicant's Name: Robert Hawk

Title: Agent, Orion GFS, LLC

Telephone No. 928-342-3489

Applicant's Signature:

*Robert Hawk*

Date: Sept. 21, 2011

**Decision Information for 88685-E**

Decision Sec: 455583	Action Code: R301, NEW PRODUCT, IDENTICAL OR SUBSTANTIALLY SIMILAR	Decision Status
FFS Start Date: 19-Oct-2011	Tentative Ind: No	Tracking
Due Date: 19-Feb-2012	75-Day Due Date:	Create Resubmission
OPP Target Due Dt:	21-Day Screen Dt: 19-Oct-2011	FFS Letters
Negotiated Due Dt:	Start/Stop Clock	FFS Documentation
Registrant	FQPA Clock:	Action Code History
Response Due Date:	Days Elapsed:	Secondary Decision
Current Status: PENDING (29-Sep-2011)		

Decision Comments	Payment	Unmatched Payments	75 Day Letters
Meetings & Milestones	FFS Information	FFS Negotiated Due Dates	OPP Target Due Date
Decision Ownership	Receipts	Data Package	Reduced Risk

Receipts	Staff Member	Reg/DCI Number	Submission Due Dt	Response
S: 904295	Stone, James	88685-E	19-Feb-2012	PENDING
NA				

PRIA R301

Viewing Record 1 of 1

DUE: 2/19/12

JIM -

YOU HANDLED MOST OF THE ACTIONS FOR THE CITED PRODUCT. NEW PRODUCT REGISTRATION.

THANKS.

- MEX FOR KAY

10/12/11



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

October 03, 2011

OFFICE OF CHEMICAL SAFETY  
AND POLLUTION PREVENTION

SOURCE DYNAMICS LLC  
ORION GFS, LLC  
12230 E DEL NORTE  
YUMA, AZ 85377-7355

Report of Analysis for Compliance with PR Notice 86-5

Thank you for your submittal of 28-SEP-11. Our staff has completed a preliminary analysis of the material. The results are provided as follows:

Your submittal was found to be in full compliance with the standards for submission of data contained in PR Notice 86-5. A copy of your bibliography is enclosed, annotated with Master Record ID's (MRIDs) assigned to each document submitted. Please use these numbers in all future references to these documents. Thank you for your cooperation. If you have any questions concerning this data submission, please raise them with the cognizant Product Manager, to whom the data have been released.



# Receipt for Section 3

S: 904235

Resubmission: ☐ Yes ☒ No

Regulatory Type: Product Registration - Section 3

Fee For Service: ☒ Yes ☐ No

Application Type: New Registration

Billable: ☒ Yes ☐ No

Company: 88685 ORION OFS, LLC V

Risk Manager: Registration Division, Risk Management Team 23

Product #: 88685-E Product Name: GLUFOSINATE 280 HERBICIDE

Override:

Me Too  
Section3: 264-829

Me Too  
Product Name: LIBERTY 280 SL HERBICIDE

Application Date: 21-Sep-2011

OPP Rec'd Date: 28-Sep-2011

Front End Date: 28-Sep-2011

Risk Manager Send Date:

FFS Due Date:

Negotiated Due Date:

OPP Target Date:

Fast Track: ☐

New Ingredient: ☐

Receipt Description:

Registration application

Form A: ☐

Signature Date:

Form B: ☐

Signature Date:

Print Letter

Enter More Information

Tracking

Receipt Content

Study

CSF

View/Edit

New Ingredient

Request Date:

New Ingredient

Received Date:



**ORION GFS, LLC**

September 21, 2011

Document Processing Desk (APPL)  
Office of Pesticide Programs (P7504C)  
Environmental Protection Agency  
Room S-4900, One Potomac Yard (South Building)  
2777 S. Crystal Drive  
Arlington, VA 22202

Attn: Kathryn Montague (PM 23), Herbicide Branch, Registration Division

Dear Ms. Montague:

Subject: Glufosinate 280 Herbicide (EPA File Symbol 88685-E):  
Registration Application

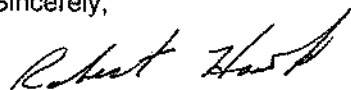
Orion GFS, LLC wishes to register a formulated product that is substantially similar to another currently registered product. In support of this application we have enclosed the following:

Application for Pesticide Registration (8570-1)  
Confidential Statement of Formula (8570-4)  
Formulator's Exemption Statement (8570-27)  
Certification with Respect to Citation of Data (8570-34)  
Data Matrix (8570-35)  
Summary of the Physical/Chemical Properties (8570-36)  
Self-Certification Statement for the Physical/Chemical Properties (8570-37)  
Proposed label (6 copies)  
Supporting studies (3 copies, with Data Transmittal Document)

We have concluded that this regulatory action falls in PRIA II Category R301, for which the fee is \$1720. Confirmation of payment is enclosed.

Please contact me if you have any questions.

Sincerely,



Robert Hawk  
Source Dynamics LLC  
Agent for Orion GFS, LLC

## DATA TRANSMITTAL DOCUMENT

Name and Address of Data Submitter

Orion GFS, LLC  
12230 E. Del Norte  
Yuma, AZ 85367-7355

Regulatory Action in Support of Which This Package is Submitted

Registration Application (88685-E): Glufosinate 280 Herbicide

Transmittal Date

September 21, 2011

Submitted Studies (3 Copies)

**48610301** R. E. Hawk, "Glufosinate 280SL Herbicide: Product Identity, Description of Materials, Manufacturing Process, Discussion of Impurities and Certification of Limits," Report No. OG1110C (September 21, 2011), 39 pages, OPPTS 830.1550, 830.1600, 830.1620, 830.1670 and 830.1670

Company Official: Robert Hawk

Signature:



Company Name: Orion GFS, LLC  
Company Contact: Robert Hawk  
Source Dynamics LLC  
Agent for Orion GFS, LLC  
rhawk@solerasd.com  
telephone (928) 342-3489

**21-Day Screen Completed by**  
**Contractor**

**21-Day Expires on** 10-19-11

**Jacket #** 88685-E

**MRID#** 486103

**Content Screen:** Recommend to Pass/Fail

**86-5 Review:** Pass/Fail/NA

**Overall Status:** Recommend to Pass/Fail

**Transfer This Jacket to:**

STEPHEN SCHAUBLE  
PM-23

# PRIA 2 – 21 Day Content Screen Review Worksheet

(EPA/OPP Use Only)

21 Day Screen Start Date: 9-28-11 3/23/09

Experts In-Processing Signature: P. R. Date 9-30-11 Fee Paid: Yes ☒

Division management contacted on issues No ☐ Yes ☐ Date \_\_\_\_\_

EPA Reg. Number: <u>88685-E</u>		EPA Receipt Date: <u>9-28-11</u>				
Items for Review				Yes	No	N/A*
1	<b>Application Form</b> (EPA Form 8570-1)(link to form) signed & complete including package type			X		
2	<b>Confidential Statement of Formula</b> all boxes completed, form signed, and dated (EPA Form 8570-4) (Link to form)			X		
	a) All inerts (link to <a href="http://www.epa.gov/opprd001/inerts/">http://www.epa.gov/opprd001/inerts/</a> ), including fragrances, approved for the proposed uses (see Footnote A) <u>for harvest food use</u>	yes	no			
3	<b>Certification with Respect to Citation of Data</b> (EPA Form 8570-34) (Link to form) completed and signed (N/A if 100% repack)			X		
	Certificate and data matrix consistent			X		
	If applicant is relying on data that are compensable, is the offer to pay statement included. (see Footnote B)	yes	no			
	If applicable, is there a letter of Authorization for exclusive use only.					
4	<b>Formulator's Exemption Statement</b> (EPA Form 8570-27) (Link to form) completed and signed (N/A if source is unregistered or applicant owns the technical)			X		
	<b>Data Matrix</b> (EPA Form 8570-35) (Link to form) both internal and external copies (PR 98-5) (Link to PR 98-5) completed and signed (N/A if 100% repack)			X		
5	a) Selective Method (Fee category experts use)	yes	no			
	b) Cite-All (Fee category experts use)					
	c) Applicant owns all data (Fee category experts use)					
6	<b>5 Copies of Label</b> (link to <a href="http://www.epa.gov/oppfead1/labeling/lrm/">http://www.epa.gov/oppfead1/labeling/lrm/</a> ) (Electronic labels on CD are encouraged and guidance is available)( link to <a href="http://www.epa.gov/pesticides/regulating/registering/submissions/index.htm#labels">http://www.epa.gov/pesticides/regulating/registering/submissions/index.htm#labels</a> )			X		

7	Is the data package consistent with PR Notice 86-5 (link to PRN 86-5)	X		
8	Notice of Filing (link to <a href="http://www.epa.gov/pesticides/regulating/tolerance_petitions.htm">http://www.epa.gov/pesticides/regulating/tolerance_petitions.htm</a> ) included with petitions (link to <a href="http://www.epa.gov/pesticides/regulating/tolerances.htm">http://www.epa.gov/pesticides/regulating/tolerances.htm</a> )			X
9	If applicable for conventional applications, reduced risk rationale (link to <a href="http://www.epa.gov/opprd001/workplan/reducedrisk.html">http://www.epa.gov/opprd001/workplan/reducedrisk.html</a> )			X
10	Required Data (link to <a href="http://www.epa.gov/pesticides/regulating/data_requirements.htm">http://www.epa.gov/pesticides/regulating/data_requirements.htm</a> ) and/or data waivers. See Footnote C.			
	a) List study (or studies) not included with application			

Comments:

- 11C  
10-7-11
- 86-5: Associated studies have passed 86-5 review
  - Inerts: Inerts approved for food use under 40 CFR 180.920, pre-harvest application to growing crops
  - Documentation: Pass
    - Data matrix missing guideline 830.1650
    - Formulator's exemption statement MISSING Reg. No. 88685-R.
    - Registrant contacted 10-6-11. All corrections received

Pass

MRID 486103

\* N/A – Not Applicable

Footnotes

A. During the 21 day initial content review, all CSFs will be reviewed to determine whether all inerts listed, including fragrances, are approved for the proposed uses. If an unapproved inert is identified, the applicant must either 1) resolve the inert issue by, for example, removing the inert, substituting it with an approved inert, submitting documentation that EPA approved the inert for the proposed pesticidal uses, correcting mistakes on the CSF, etc. or 2) provide the data to support OPP approval of the inert or 3) withdraw the application. Removing or substituting an inert ingredient will require a new CSF and may require submission of data. All information, forms, data and documentation resolving the inert issue must have been received by the Agency or the application withdrawn within the 21 day period, otherwise, the Agency will reject the application as described below.

To successfully complete this aspect of the 21 day initial content screen, applicants are **strongly encouraged** to verify that all inert ingredients have been approved for the application's uses **even if a product is currently registered** by consulting the inert Web

site [link to <http://www.epa.gov/oppr001/inerts/lists.html>] and if the inert is not approved, to **obtain the necessary inert approval prior to submitting an application to register a pesticide product containing that inert ingredient**. Some inert ingredients are no longer approved for food uses or certain types of uses. The name and/or CAS number on a CSF must match the name and CAS number on this web site. Simple typographical errors in the name or CAS number have resulted in processing delays.

If an inert is not listed on the inert ingredient web site and the applicant believes that the inert has been approved, the applicant should contact the Inert Ingredient Assessment Branch (IIAB) at [inertsbranch@epa.gov](mailto:inertsbranch@epa.gov) and resolve the issue. Copies of the correspondence with IIAB resolving the issue should accompany the application. All new inerts except PIP inerts are reviewed by IIAB. The IIAB should also be contacted for any questions on what supporting data needs to be submitted for and the Agency's inert review process. Questions on PIP inerts should be directed to the Chief of Microbial Pesticides Branch [Link to [http://www.epa.gov/oppb001/biopesticides/contacts\\_bppd.htm](http://www.epa.gov/oppb001/biopesticides/contacts_bppd.htm)].

When a brand, trade, or proprietary name of an inert ingredient is listed on a CSF, additional information such as an alternate name of the inert, CAS number or other information [link to <http://www.epa.gov/oppr001/inerts/tips.pdf>] must also be included to enable the Agency to determine if it has been approved. Each component of an inert mixture (including a fragrance) must be identified. In some cases, the supplier of the mixture or fragrance may need to provide this information to the Agency. Prior to the Agency's receipt of an application, applicants must arrange with a proprietary mixture or fragrance supplier to provide the component information to the Agency or promptly upon EPA's request. If the inert ingredients in a proprietary blend (including fragrances) cannot or are not identified or provided within the 21-day content review period, the Agency will reject the application.

During the 21 day content review, applicants should submit information to the individual identified by the Agency when the applicant is informed of an unapproved inert.

### **Unapproved Inerts Identified on CSFs**

#### **All applications except conventional new products and PIPs**

Once an unapproved inert is identified on a CSF, the Agency will contact the applicant with the following options:

1. Correct the application by, for instance, correcting the inert's identity or CAS number, providing documentation that the inert has been approved, or removing the unapproved inert from the CSF or replacing it with one that is approved for the application's uses; or
2. Submit the information and data needed for the Agency to approve the unapproved inert. If this option is selected and implemented, the Agency may request an extension in the PRIA decision review timeframe to accommodate the inert review/approval process;

3. Withdraw the application (the Agency retains 25% of the full fee for the fee category estimated); or

If none of these options is selected and implemented by the applicant within the 21 day content review period, the Agency will reject the application and retain 25% of the full fee of the category identified.

#### Conventional New Product Applications

When the Registration Division identifies an unapproved inert on a CSF with an application for a new product that the applicant has not identified as requiring an inert approval (R311, R312 or R313), it will contact the applicant with the following options:

1. Correct the application by, for instance, correcting the inert's identity or CAS number, providing documentation that the inert has been approved, or removing the unapproved inert from the CSF or replacing it with one that is approved for the application's uses; or
2. Submit the information and data needed for the Agency to approve the unapproved inert, including any required petition to establish or amend a tolerance or exemption from a tolerance. (This option may change the PRIA category for the application, which could require a longer decision review time and a larger fee. If additional fees are due, they must be received by the Agency within the 21 day content review period.)
3. Withdraw the application (the Agency retains 25% of the full fee for the fee category estimated); or

If none of the above options is selected and implemented during the 21-day content-review period, the Agency will reject the application and retain 25% of the appropriate fee for the new product-inert approval category.

#### PIP Applications

When the Biopesticide and Pollution Prevention Division identifies an unapproved inert on a PIP CSF and a request to approve the inert does not accompany the application, it will contact the applicant with the following options:

1. Correct the application by, for instance, correcting the spelling or name of the inert to that in 40 CFR 174, or providing documentation that the inert has been approved; or
2. Submit the information and data needed for the Agency to approve the unapproved inert. If an inert ingredient tolerance exemption petition is required, the petition must be received by the Agency and the B903 fee paid within the 21 day period. If this option is selected and implemented, the Agency will discuss harmonizing the timeframe for both actions.



3. Withdraw the application (the Agency retains 25% of the full fee for the fee category estimated); or

If none of the above options is selected and implemented during the 21 day content review period, the Agency will reject the application and retain 25% of the fee.

B. A policy on documentation of offers to pay is still being developed, however, for a me-too or fast track (similar/identical) new product, R300 or A530, an application without the necessary authorizations of offers to pay will be placed into either R301 or A531. The Agency recommends that authorizations of offers to pay be submitted with other PRIA applications to avoid delays in the Agency's decision.

C. Biopesticide applicants are advised to contact the Agency and discuss study waivers prior to submitting their application to the Agency. Documentation of such discussions should be submitted with the study waiver.

Script for Rejection Phone calls

Contact Name: Robert Hawk  
Phone #: 928-342-3489  
Email: rhawk@solerasd.com

First Call/Initials: KC

Date: 10-6-11

Time: 1:00pm

Second Call/Initials:

Date:

Time:

This is \_\_\_\_\_, EPA contractor.

I'm calling regarding your submission in support of

Glufosinate 280 Herbicide (88685-E)

We have found the following deficiencies regarding:

PR Notice 86.5: Yes or No

Volume/Study Title:

Volume/Study Title:

Volume/Study Title:

Additional volumes continued on back of page: Yes or No

Application Package: Yes or No

- Matrix missing 830.1650

- Form exempt statement missing Reg. No. 88685-R

These deficiencies have been approved by EPA.

The corrections can be faxed to 703-305-5060/Attn: \_\_\_\_\_.

Second Call/Email:

If we do not receive the corrections by \_\_\_\_\_, we will process your submission, accordingly. Please direct all future calls and correspondence to the appropriate EPA Risk Manager.

Corrections  
Received



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

September 29, 2011

OFFICE OF  
PREVENTION, PESTICIDES AND  
TOXIC SUBSTANCES

OPP Decision Number: D-455583  
EPA File Symbol or Registration Number: 88685-E  
Product Name: GLUFOSINATE 280 HERBICIDE  
EPA Receipt Date: 28-Sep-2011  
EPA Company Number: 88685  
Company Name: ORION GFS, LLC

ROBERT HAWK  
SOURCE DYNAMICS LLC  
ORION GFS, LLC  
12230 E DEL NORTE  
YUMA, AZ 85377-7355

SUBJECT: Receipt of Registration Application Subject to Registration Service Fee

Dear Registrant:

The Office of Pesticide Programs has received your application and certification of payment. If you submitted data with this application, the results of the PRN-86-5 screen will be communicated separately. During the administrative screen, the Office of Pesticide Programs has determined that this Action is subject to a Pesticide Registration Service Fee as defined in the Pesticide Registration Improvement Act.

The Action has been identified as Action Code: R301  
NEW PRODUCT;IDENTICAL OR SUBSTANTIALLY SIMILAR IN COMPOSITION AND  
USE TO A REGISTERED PRODUCT;REGISTERED SOURCE OF ACTIVE  
INGREDIENT;SELECTIVE DATA CITATION ONLY FOR DATA ON PRODUCT  
CHEMISTRY / ACUTE TOXICITY / PUBLIC HEALTH PEST EFFICACY, WHERE  
APPLICANT DOES NOT OWN ALL REQUIRED DATA NOR HAS AUTHORIZATION  
LETTER FROM DATA OWNER;

No additional payment is due at this time. If you have any questions, please contact the Pesticide Registration Service Fee Ombudsman at (703) 308-9362.

Sincerely,

A handwritten signature in black ink, appearing to be "J. Se", is written over the word "Sincerely,".

Front End Processing Staff  
Information Technology & Resources Management Division

**Fee for Service**

*M*  
{904235}~

This package includes the following

- ☒ New Registration
- ☐ Amendment

- ☒ Studies?      ☐ Fee Waiver?
- ☐ volpay    % Reduction: \_\_\_\_\_

for Division

- ☐ AD
- ☐ BPPD
- ☒ RD

Risk Mgr. 23

Receipt No.

S- 904235

EPA File Symbol/Reg. No.

88685-E

Pin-Punch Date:

9/28/2011

☐ This item is NOT subject to FFS action.

Action Code:

Requested: R301

Granted: R301

Amount Due: \$ 1,720

Parent/Child Decisions:

☒ Inert Cleared for Intended Use

☐ Uncleared Inert in Product

Reviewer: Steve Schauble

Date: 9/29/11

Remarks:

## R 300 and 301

100% identical (repack): YES or NO (circle one)

{If **yes**, it's a 100% repack - then product chemistry, acute toxicity and efficacy data are not required}

Data on Group and A and B must be submitted - Group A and B can not be cited.

Guideline No.	Group A: Product Chemistry Data Study Title	Data submitted	
		Yes	No
830.1550	Product Identity & Composition	✓	
830.1600	Description of materials used to produce the product	✓	
830.1650	Description of formulation process		
830.1670	Discussion on the formation of impurities	✓	
830.1700	Preliminary analysis	✓	
830.1750	Certified limits (158.345)	✓	
830.1800	Enforcement analytical method	✓	

Guideline No.	Group B: Product Chemistry Data Study Title	Data submitted	
		Yes	No
830.6302	Color	✓	
830.6303	Physical State	✓	
830.6304	Odor	✓	
830.6314	Oxidation/Reduction (Chemical incompatibility)	✓	
830.6315	Flammability	✓	
830.6316	Explodability	✓	
830.6317	Storage stability	✓	
830.6319	Miscibility	✓	
830.6320	Corrosion Characteristics	✓	
830.6321	Dielectric Breakdown voltage	✓	
830.7000	pH	✓	
830.7100	Viscosity	✓	
830.7300	Density	✓	

## R 300 and 301

New products must provide a bridging rationale document. The bridging document directs OPP to use a currently registered set of 6 acute toxicity data and label; instead of submitting product specific data.

Guideline No.	Acute toxicity (6 pack) Study Title	Cited	
		Yes	No
870.1100	Acute Oral (LD50)	✓	
870.1200	Acute Dermal (LD50)	✓	
870.1300	Acute Inhalation (LC50)	✓	
870.2400	Acute Eye Irritation	✓	
870.2500	Acute Dermal Irritation	✓	
870.2600	Dermal Sensitization	✓	

Efficacy – which guideline depends on the proposed label use and they must cite the data to be used for the bridging rationale.

Guideline No.	Efficacy Study Titles	Cited		Comments
		Yes	No	
810.3100	Soil Treatments for Imported Fire Ants			
810.3200	Livestock, Poultry, Fur and Wool-Bearing Animal Treatments			
810.3300	Treatments to Control Pests of Humans and Pets			
810.3400	Mosquito, Black Fly, and Biting Midge (Sand Fly) Treatments			
810.3500	Premises Treatments			
810.3600	Structural Treatments			
810.3800	Methods for Efficacy Testing of Termite Baits			

810 1 Efficacy Scores

✓

# Receipt for Section 3

S: 904235

Resubmission: ☐ Yes ☒ No

Regulatory Type: Product Registration - Section 3

Fee For Service: ☒ Yes ☐ No

Application Type: New Registration

Billable: ☒ Yes ☐ No

Company: 88685 ORION GFS, LLC

V

Risk Manager: Registration Division, Risk Management Team 23

Product #: 88685-E Product Name: GLUFOSINATE 280 HERBICIDE

Override#

Me Too  
Section3: 264-829

Me Too  
Product Name: LIBERTY 280 SL HERBICIDE

Application Date: 21-Sep-2011

OPP Rec'd Date: 28-Sep-2011

Front End Date: 29-Sep-2011

Risk Manager Send Date:

FFS Due Date:

Negotiated Due Date:

OPP Target Date:

Fast track: ☐

New Ingredient: ☐

Receipt Description:

Registration application

Form A: ☐

Signature Date:

Form B: ☐

Signature Date:

Print Letter

Enter More Information

Tracking

Receipt Content

Study

CSF

View/Edit

New Ingredient

Received Date:

New Ingredient

Received Date:

**From:** paygovadmin@mail.doc.twai.gov  
**Sent:** Tuesday, September 20, 2011 8:45 PM  
**To:** rhawk@solasd.com  
**Subject:** Pay.Gov Payment Confirmation

THIS IS AN AUTOMATED MESSAGE. PLEASE DO NOT REPLY.

Application Name: PRIA Service Fees  
Pay.gov Tracking ID: 254GHN1E  
Agency Tracking ID: 74239761455  
Transaction Type: Sale  
Transaction Date: Sep 20, 2011 11:45:06 PM

Account Holder Name: terry stojic  
Transaction Amount: \$1,720.00  
Billing Address: 7364 E Red Hawk  
City: Mesa  
State/Province: AZ  
Zip/Postal Code: 85207  
Country: USA  
Card Type: Visa  
Card Number: \*\*\*\*\*6080

Decision Number:  
Registration Number:  
Company Name: Orion GFS, LLC  
Company Number: 88685  
Action Code: R301

[illegible]



